

Virtuous economics

A consensual dialogue on the
questions to which economics
provides the answer.

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*"To raise new questions, new possibilities, to regard old problems from a new angle,
requires creative imagination and marks real advance in science."*

Albert Einstein

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Synopsis

Studying economics is a permanent challenge right from the start. What is economics all about? Why does it matter? How does economics make a difference? When is it time to deploy economic guidelines? Who must hold responsibility for the economy? Beyond the words of common sense, this work fosters a continuous dialogue on virtuous economic thoughts. It explains why economic development depends on institutional economics and how can society consistently raise positive opportunistic behavior's foundations.

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Preamble

Is economics a science? The scientific approach to knowledge acquisition encompasses, according to Oxford's definition, "*the systematic study of the structure and behavior of the physical and natural world through observation and experiment.*" Yet, economics deals with the artificial manipulation of both available resources and human interactions. Since 1776, when Adam Smith outlined the role of market dimension and task specialization, economics has been focused on finding the rules that deliver the highest level of overall welfare. Hence, observing how human behavior evolves before a given circumstance, identifying the structure of these sets of actions and consequences, harmonizing it with the natural world, and doing it systematically, surely constitutes a significant challenge, for the world is embedded in continuous change. The regular citizen has trouble supporting the idea that economics is, indeed, a science.

The extension to which economics is recognized as a science boils out even in the minds of economists. Unlikely other scientific fields, it is often observed that economists cannot agree about either the cause of a given economic problem, the likely dimension of the problem, the best solution for a given economic problem, or who must hold responsible for solving the problem. Consequently, economics is often mixed up with politics.

Perhaps in an effort to claim its scientific legitimacy, economics is usually grounding its systematic analysis on sophisticated mathematical apparatus, which naturally assumes a static nature. Dynamics is added by changing a given variable and, under a *ceteris paribus* analysis, i.e., keeping all else equal, the economist identifies what is the new result dictated by the equations. But, often, *ceteris paribus* is an unreal assumption, and the equilibrium, price, and quantities provided by mechanical formulas are often refuted across the economists' community. To the remaining society, the economist is seen as someone who always speaks conditionally. So, often, economists make promises in the present to excuse later on why their promises could not be fulfilled. Setting up a clear definition of what economics is all about becomes paramount.

As a science, economics needs to irrefutably bind the application of its theoretical concepts with the overall welfare improvement. Economics can do it. This work is about showing it mainly through using the mathematical foundations which we, economists, usually resort to.

But pursuing welfare improvement requires dealing with available resources. The faculty of choosing how to use available resources puts the concept of opportunity at the

heart of economic analysis. Interest-driven human behavior is hither pertinently considered to encompass the entire society. It is shown that economic human behavior is, indeed, counter-intuitive. It is shown how institutions set up perverse rules for reaching overall welfare. It is shown that opportunity always has a cost to be methodologically considered.

Nonetheless, this work fosters a dialogue with the reader, appealing to your own contribution. It challenges you to inquire about both the author's proposal and the alternatives available. It asks you to name your own solutions to the same problem and compare the gathered possibilities. It leaves room for individual thought.

This work deals with the answers to the relevant questions on the economics of what, why, how, when, and who. It focuses on a step-by-step approach to show the few premises that each of the three main economic markets needs to exhibit to reach efficiency, free from a *ceteris paribus* approach. It aims at outstanding economics as the virtuous science it really is.

Introduction

Economics has been born in a barely precise time. At a given time in history, mankind started to realize that particular forms of organizing the means of production could be combined with specific trade opportunities to improve people's living conditions. Concerns on the origin and manifestations of value loomed out. Discovering the way to make value bigger consolidated as an obsession. Individual interest became intertwined with collective goals and the systematic approach to studying these interactions gave rise to a very specific way of thinking.

In the early days of economic science, the link between value and welfare was established as the outcome of the tug-of-war between individual interests. Ideological thoughts started to be widespread. Economic science exhibited the production of different outcomes according to the lens of who is analyzing the problem. This reality is not much different nowadays. And the difficulty remains.

Hence, economics is, perhaps, the science that faces the most daunting difficulties. Conflictual interests among humans do not always give room to cooperative attitudes and setting up a systematic understanding of economic behavior becomes a thrill. Realizing that specific circumstances provide the best environmental conditions for both value creation and welfare improvement is rarely consensual. Power considerations impact every ruler's legitimacy to set up the economic playfield. Circumstances change according to the elite's will, and the concepts of value and overall welfare tear apart. Unlike other sciences, rather than always being seen as a virtuous science, economics can now be perceived as a serious threat.

In 1919, Walton H. Hamilton¹ (p. 310) insightfully outlines that "institutional economics" is "economic theory" and establishes a link between value economics and a "*conception of the nature of economic order*". It is unanimously recognized that the rules that set up economic behavior condition every opportunity humans can dispose of. Therefore, this institutional framework, whether legal or not, is significant to define the scope for value creation and overall welfare. Yet, one hundred years have gone by, but the majority of the economic studies are still performed while taking the institutional environment for granted. The focus on the institutional environment for fostering overall welfare is still blurred. It seems that one entire century has passed but economists are still afraid of threatening the status quo.

¹ See Hamilton, W. H. (1919) "The institutional approach to economic theory."

How humans act before an opportunity depends on a significant number of variables. Some are intrinsic to the institutional environment and take both formal (rules and regulations) and informal contents (culture, customs, and traditions). Others, as shown by psychological game theory,² are dependent on the individual's inner beliefs. Virtuous economics needs to understand them all, accept them all, and embody their effects on a specific set of premises that systematically lead to a precise outcome. Confidently, it fosters the simultaneous creation of both value and overall welfare improvement.

In this realm, opportunistic behavior can be classified as either positive or negative. Negative opportunistic behavior occurs when someone acts to satisfy their own individual needs while being aware that he or she ends up worse off if every person in the community acts the same way, such as stealing or bribing. Positive opportunistic behavior happens when someone acts to satisfy their own individual needs while being aware that he or she ends up better off if the entire community behaves similarly, such as producing goods or avoiding polluting. Economics is concerned with value creation and overall welfare improvement. Accordingly, economics cannot ignore both the rules that foster positive opportunistic behavior and the rules that induce people to avoid negative opportunism.

Building up from this basis, this work deals with finding out the axiomatic that consistently delivers value creation and overall welfare improvement, gathering consensus. The author's proposal is often resting on both mathematical analysis and someone's else studies. It always demands the reader's inquiry. Although laborious, hopefully, the reading might be enlightening, challenging, and rewarding as well.

² See Peng, M. W. (2003) "Institutional transitions and strategic choices" and Battigalli, P., & Dufwenberg, M. (2019) "Psychological game theory."

What economics is all about?

What can an economist do for you? When we ask what can a physician do to improve someone's welfare, the answer is plain. A clear notion of the purpose and goal of a given activity enables a perception of its value to produce an improvement. However, unlike what happens with so many other professionals, the common citizen can hardly explain what an economist does for him or her. Throughout history, the economy has been taken for granted, and that leads the average person to forget about the possibility of producing a change.

In ancient times, when some man owned another man, work was paid in protection, shelter, and goods. In those eras, people realized that overall welfare could be improved by exchanging the surpluses of goods they had but did not need, for those they did not have but were in need of. Hence, some formal rules were established to make those trades easier, and monetary rules became enacted in society. The bond between institutional rules and overall welfare improvement was definitely established a long time ago.

Monetary rules were likely the first raw production of institutional economics. Remarkably, its application field was immediately linked with the production of goods, the distribution of goods, and the overall welfare improvement. The supply of goods started to be related to the extension of its need. Further, its scope was confined to times of peace. An idea of what economics can do for mankind created its roots across the centuries.

In the eighteenth century, with the industrial revolution, the astonishing increase in the pace of aggregate production gave rise to a huge need for enacting formal rules that could guarantee overall welfare improvement by securing the production, distribution, and consumption of goods. This need grew in the nineteenth century and was extended by Karl Marx to a focus on negative human behavior.³ Marx notes that, on a positive-strand, regular economic behavior produces value through the exchange of useless surpluses that would be wasted otherwise. Conversely, the author highlights that the economic system of the time could decrease welfare as well by allowing abusive practices of some members of the society over others and, therefore, new rules were claimed. Before Marx, Adam Smith also outlines that, whenever they can, producers take advantage of the remaining society by contriving to secure monopolistic practices. The notion of the common existence of both positive and negative opportunistic behavior loomed out long ago. Institutional

³ See Karl Marx (1867) "Capital. A critique of political economy" and Adam Smith (1776) "The wealth of nations".

economics, as a crucial area of study, became paramount for ensuring overall welfare improvement.

The definition of what economics can do for mankind gets increasingly blurred along with the rise in the complexity of human interactions. The complexity has, at least, four different branches, each requiring attention. Firstly, how individual behavior happens within a given regulatory framework (sometimes called microeconomics). Secondly, how the entire individual behaviors combine to produce a given collective outcome (sometimes called macroeconomics). Thirdly, how economic events really happen regardless of society's awareness of its contribution to overall welfare (sometimes called positive economics). And fourthly, how economic events should be in order to continuously foster overall welfare (sometimes called normative economics). Consequently, economic researchers become trapped in this complexity, and focusing too much on only one of these branches leads to losing the global economic perspective. The definition of what is economics evolved over time, and so the concept of what an economist can do for you has been changing as well.

In 1989, when I had just entered university, I was told that economics is the scientific branch that studies the efficient allocation of limited resources to provide the satisfaction of virtually unlimited needs. Considering the above mentioned so far, this definition must be classified as quite imprecise for several reasons: 1) by focusing on the resource allocation efficiency, which is a decision that mostly concerns productive units, it directs the economic analysis to the supply-side of the economy while risking losing the demand-side perspective (e.g., consumer behavior); 2) the demand-side of the economy is, according to the above definition, considered unlimited, which, in itself, is an assumption weakened by the existence of both satiety and precautionary behaviors; 3) this definition directly associates welfare with higher levels of consumption while disregarding leisure's positive contribution to the overall welfare; and 4) resource allocation efficiency must be analyzed under a given institutional framework, leading the economist to focus on either microeconomic or macroeconomic measures while almost completely missing the focus on institutional economics, which, in this case, is taken for granted.

Today, the definition of economics is still screaming out loud for consensus. James G. March, in his 1991's seminal article,⁴ poses that "*a central concern of studies of adaptive processes is the relation between the exploration of new possibilities and the exploitation of old certainties*" (March, 1991, p. 71). The author further outlines that

⁴ See March, J. G. (1991) "Exploration and exploitation in organizational learning."

“learning, analysis, imitation, and technological change are major components of any effort to improve organizational performance” (March, 1991, p. 85). Albeit March’s article focuses on the context of organizations within the management realm, it is irrefutable that economics comprehends both the need of exploring new possibilities by considering the effects of institutional changes on overall welfare improvement and the need of exploiting old certainties by identifying the economic rules that best take advantage of the current economic system. A proper articulation between the four above-identified economic branches is yet to be harmoniously pursued.

Consolidating economics as a virtuous science, recognized by the good it can bring to a human being, is a task that needs to be performed by every economist. Economics is, perhaps, the most challenging science to which a person can dedicate his or her life. Understanding how to improve everyone’s living conditions necessarily impacts the way the other professionals can perform, the way the other professionals can consume, and the way the other professionals can enjoy life! Publicly explaining how institutional rules need to change is paramount. Advertising the economists’ conclusions is crucial. Only then the value of economics can be entirely perceived.

To me, economics concerns the systematic study of human and material interactions to ensure overall welfare improvement.

What is economics to you?

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Why does it matter?

To economics, the chief concern is to understand how human and material interactions can deliver overall welfare improvement. Stemming from this one, a number of economic problems claiming solutions are as follows:

- 1) What to produce?
- 2) How to produce?
- 3) For whom to produce?
- 4) How to deal with the scarcity of available resources?
- 5) How to eradicate pollution?
- 6) How to eradicate unemployment?
- 7) How to eradicate inflation?
- 8) How to eradicate poverty?
- 9) How to reduce income inequality?
- 10) How to keep the levels of reached economic development?
- 11) How to consistently solve the first ten problems without the need to compromise any one of them?

The main reason why economics is so important is that no other scientific knowledge can completely solve these problems. At its core, economics resorts to math to find its answers but it is all about people. Essentially, it deals with both human behavior, as input, and human feelings, as output. In the middle, material considerations are taken into account, but the final outcome of economics is the overall welfare. Welfare always translates into a general feeling of being well. Hence, the impact of economics on society extends far beyond providing the immediate solution to these eleven questions. Overall welfare demands society to build a foundation of positive feelings, such as trust, security, self-esteem, achievement, and joy, making economics the science that boosts other sciences' successes.

However, given the current state of affairs, economists need to disclose the answer to another very important question: What precludes them from succeeding? The main reason why someone looks for a physician is that he or she is feeling sick and believes that the doctor can provide a solution to the problem. If a person believes that nobody can solve his or her problem then the solution must be found through lonely efforts. In this instance, an outer solution is considered useless. However, trusting that the doctor can be the answer to our problems demands that the doctor proves that he or she can be of assistance. Currently,

economics has more than two hundred years of existence and is still struggling to prove its utility.

Economics does matter, but its knowledge has mainly been used elsewhere. The majority of the graduated economists are professional managers, financial, accountants, or politicians. Hence, the focus of these people is directed towards benefiting individual interests (whether in the form of a person, a corporation, or a part of society) but is not focused on fostering overall welfare. Accordingly, they have trouble speaking in unison. This hinders society from acknowledging the economics' utility. Economics is lacking the legitimacy to fulfill the role it was born for.

Currently, despite its importance, society is not seeking an economist to solve the above-mentioned problems. Perhaps this is due to a meager awareness of the importance of institutional changes for channeling human behavior into a positive strand. Perhaps it happens because institutional changes might shake established structures of power. Perhaps there are some other explanations. Nevertheless, there remains no doubt that society is paying a huge cost by disregarding why economics matter and how it can be of assistance.

How does economics make a difference?

Explaining “how” requires embracing one or more specific actions aimed at reaching a given goal. Within a precise scenario and using the available technique, an outcome is expected to come out. Answering “how” is where the theory gives room to practice.

We start with the basics of every economic thought. Departing from the definition that economics aims at systematically studying the human and material interactions that deliver the highest overall welfare, we understand that economics deals with both human behavior and the availability of material resources. Individual welfare is improved through the exchange of goods and services, which must first be produced to enable an economic transaction. If we accept that human well-being increases along with both consumption ability and leisure time, then we can assume that human behavior will be directed toward optimizing all available resources, whether of human or material nature. Available human and material resources differ on several criteria such as persons, location, natural conditions, material features, infrastructures, social rules, and so on, all establishing a given circumstance, all requiring attention from the decision-maker. Hence, the most basic element of economics is the concept of “opportunity.” Understanding how an opportunity is either created, stimulated, inhibited, taken, or lost, is, therefore, the economist’s starting point.

Economic consequences arise from individual deeds, regardless of the eventual existence of human interactions. For instance, if an individual is in the middle of the desert and he or she inadvertently poisons a freshwater pit, then a consequence to individual and collective well-being is happening. When considering more complex environments, such as the one presented by the urban intricacy, the room that is given for human activities to occur settles the scope for individual actions. The consequences of this activity are mainly of two kinds: choices and mistakes. Both carry a fan of causes and effects which, regarding economic matters, are usually not entirely understood or controlled by the individual due to environmental constraints and “bounded rationality.”⁵ Hence, economic consequences are shaped by the set of rules governing human behavior.

There is a unanimous consensus among the economic community regarding the decisive importance of the institutional environment in setting up the pace of overall welfare. However, the majority of these studies have been developed by focusing on the human action of exchanging a good or service. This knowledge is crucial for the decision-

⁵ See Williamson, O. E. (1981) “The economics of organizations: the transaction cost approach.”

maker who holds responsibility for economic matters. Understanding it enables to enact of suitable rules and measures aimed at increasing production while reducing its costs. Yet, the transaction concept focuses on a human interaction while economic consequences begin to emerge right from the moment of the individual relationship with the material resource. Seeking to fully understand economic behavior, one is aware that the opportunity concept precedes the transaction concept.

The literature outlines the existing path of dependency between the institutional environment and economic development. Douglas C. North (1991, p. 8), in his illuminating work, poses that “*the direction and form of economic activity by individuals and organizations reflected the opportunities thrown up by the basic institutional framework of customs, religious precepts, and formal rules (and the effectiveness of enforcement).*” The author further underlines the contribution of the evolution of organizational changes to lower the costs of transactions, favoring the increase in the mobility of capital, the decrease in information costs, and the ability to transform uncertainty into risk by reckoning the likelihood of a given event and allowing the economic agent to hedge against it. On the other hand, Douglas North also alerts for the possible evolution of the institutional environment detrimentally to economic development when “*private profitability has been enhanced by creating monopolies, by restricting entry and factor mobility, and by political organizations that established property rights that redistribute rather than increased income*” (North, 1991, p. 109).

Institutions direct human behavior and, therefore, set the scope for opportunistic behavior. In this sense, opportunistic behavior can be defined as the set of human deeds entailing consequences for individual and collective welfare. By this token, opportunistic behavior loses its usual negative connotation, to acquire a neutral significance. Opportunity is seen as a mere tool that humans use to do something having the potential to cart good and bad consequences as well. The way opportunity is channeled by the institutional environment is paramount to economic development.

The existence of governance structures “*with which to mediate the exchange of goods or services*” and “*assessing the capacities of different structures to harmonize relations between parties*” has been recognized by economics as “*central to the study of institutional economics*” (Williamson, p. 550). Human responses occur within the boundaries set by the deployed governance structures that define the rules of the game. Opportunistic behavior looms out as one behavioral key embodied in economics due to its nature that can be shaped. Understanding how human mutual interactions affect individual

performance has led economics to choose idiosyncratic focal units, such as the firm, the householder, the principal, the agent, and other accomplishment structures of individual nature.

Along with opportunism, concepts such as “bounded rationality” and commitment become increasingly understood.⁶ This knowledge did not give rise to an overall governance structure that consistently fosters overall welfare yet. Microeconomic Analysis has been supporting the decision-makers’ choice and a full understanding of its wider effects is still absent. Consequently, macroeconomic studies take microeconomic behavior as given and the transformational action of the economist to increase overall welfare is still missing strength. And, as posed by Dirk Nicholas Wagner (2019, p. 2) “*the conceptual ignorance indicates theoretical relevance.*”

Answering how can mankind properly deal with the economics’ eleven basic questions requires a continuous pendulous movement between theory and practice. Moreover, two very significant remarks need to impose. First, the adequate institutional environment to foster opportunity in a positive mode depends on the available circumstances.⁷ Accordingly, the work of the economist work is never completed and requires permanent monitoring of the adequacy of whatever may be the current rules. Second, changing the institutional environment is something that carts a huge responsibility for the policy-maker. This awareness demands economics to consider simultaneously what the adequate rules might be, along with what are the circumstances that might prevent a given rule from being appropriate. And these remarks pose normative economics at the beginning of the economist’s concern.

Regarding the pursuit of overall welfare, contemporary economics focus on presenting medicines to alleviate the symptoms rather than providing a cure for the disease. An example widely accepted of this state of affairs is the assignment of the task of ensuring price stability to the monetary authorities. Inflation is fully recognized as both a peril to economic health and the result of excessive money creation. Yet, stubbornly, the problem has been addressed through the adoption of discrete measures, rather than the search for definitive solutions. Therefore, to fortify economics, with courage, tenacity,

⁶ See, among many others, Taylor, R. N. (1975) “Psychological determinants of bounded rationality: implications for decision-making strategies;” Williamson, O. E. (1981) “The economics of organizations: the transaction cost approach;” John, G. (1984) “An empirical investigation of some antecedents of opportunism in a marketing channel;” Gundlach, G. T., Achrol, R. S., & Mentzer, J. T. (1995) “The structure of commitment in exchange;” Kahneman, D. (2003) “A perspective on judgment and choice: mapping bounded rationality;” Love, J. H. (2005) “On the opportunism-independent theory of the firm;” and, the enlightening, Wagner, D. N. (2019) “The opportunistic principal.”

⁷ See North, D. C. (1991) “Institutions.”

carefulness, fair-mindedness, curiosity, honesty, and humility, the economist needs to go for the cure.

This chapter, although quite extended, focuses on the economic theory that grounds virtuous institutional economics. The moorings between microeconomics and macroeconomics are woven on a step-by-step approach. The methodology rests on explaining the assumptions and developing simple but representative mathematical support to, desirably, reach both useful and insightful conclusions. Conceptually, an effort is made to escape from the traditional theoretical approach while indelibly looking for new possibilities.

Opportunity

The existence of an opportunity is always relevant, but only makes a difference when it is taken. Accordingly, grabbing an opportunity always means that a specific action is taken following the evaluation of a given set of circumstances. This action produces a fan of consequences which, in turn, might spark several other reactions. And that is how an economy is built.

Among the economic scholars, a very important and related economic concept is always outlined: the notion of “opportunity cost.” The value of the next-highest-valued alternative is the cost taken by choosing to grab a given opportunity. Hence, “missing an opportunity” is the highest economic cost society can get.

Albeit this concept is taught at the beginning of every economics’ course, its grounds are usually lacking due attention. Building an economy requires the existence of human capacity to act upon the detection of an opportunity. Often, it demands humans to pick the perceived best opportunity among the ones available. Otherwise, mankind is bearing a cost. A choice is mandatory when an opportunity is detected. Overall welfare consolidates when choices on opportunities for well-being improvement are taken and replicated in society by the whole of its members. Hence, virtuous economics starts with identifying the institutional environment that fosters positive opportunistic behavior.

The identification of the best institutional environment to consistently improve overall welfare requires analyzing the induced cause-consequence relationships. On one hand, North (1991, p. 98) states that “*institutions reduce the transaction and production costs per exchange so that the potential gains from trade are realizeable.*” On the other hand, John (1984, p. 278) alerted that the different types of existing power (such as reward, coercive, legitimate, referent, and expert) define how much authority is exerted over the

individual and poses that “*structural variation is viewed as the consequence of the human tendency to behave opportunistically whenever one can profit from such behavior and is not prevented from doing so.*” Hence, economic performance cannot be disconnected from considerations about power exercise.

Another strand of analysis adding a further understanding of the induced cause-consequence relationships posed by the institutional environment is addressed by the literature through the lens of choice. In this vein, every economic agent is seen as significant to the final economic outcome, regardless of the amount of exercise power that is supposed to be held. In this realm, both positive and negative opportunistic behavior assume relevance. For instance, while addressing the principal-agent relationship, instead of focusing only on the agent’s possibility of taking advantage of the principal when enjoying the advantage of an information asymmetry, Wagner (2019, p. 2) states that “*the principal may exploit both, the situation and the agent*” and poses that the behaviors of “shirking” by agents, and “sharking” by principals need to be equally taken into account.

Now, considering positive opportunistic behavior, John (1984, p. 79) points out that “*organizations recognize the value of learning members who are spontaneously motivated to go beyond prescribed rules and perform above and beyond the call of duty.*” Thus, the link between the opportunities presented by the institutional environment and the choices taken by the economic agents is not always obvious. Furthermore, it is plain that regardless of the economic agent under analysis, opportunistic behavior can take either a positive or negative nature.

The effectiveness of cause-consequence relationships between economic agents is, therefore, under scrutiny. The design of an institutional environment is now widely admittedly relevant for economic performance. Institutional inertia, rather than a way of perpetuating the status quo, might be pushing the entire society into a ruinous downfall. North (1991, p. 98) claims that “*effective institutions raise the benefits of cooperative solutions or the costs of defection*” while Rosen (2015) supports that an efficient environmental governance regime cannot evidence a too numerous amount of decision-making spaces for this means an increase in the cost to reach cooperation. Hence, in addition to the situation room, the relational view is brought into the analysis as well.

This poses the concept of commitment at the forefront of institutional improvement. Gundlach, Achrol, & Mentzer (1995, p. 78), addressing the structure of commitment in exchange, assert that “*commitment implies a willingness to make short-term sacrifices to realize longer-term benefits.*” The regulatory framework to properly channel opportunistic

behavior into a positive mode extends far beyond the comprehensiveness of any country's parliament.

In the economic realm, it is of particular relevance to understanding how the disparate economic actors interact to produce a given level of overall welfare. Householders, firms, bankers, governors, lawmakers, coercive authorities, employers, employees, or any individual who is adopting a given economic role needs to exhibit a consistent line of activity. Otherwise, economic performance is necessarily in peril. Gundlach et al. (1995, p. 79) state that “*commitment is thought to be closely related to mutuality, loyalty, and forsaking of alternatives, variables that are at the core of the meaning of relationalism.*”

However, giving up on alternatives must undoubtedly imply that the economic agents cannot identify a better course of action to improve their own welfare. Love (2005, p. 387) poses that “*firms exist because producing for others gives rise to efficiency from economies of scale, from the advantages of specialized knowledge (i.e., ‘direction’), and finally because of low transaction costs.*” The fan of human and material interactions fostered by the institutional environment are aimed at ensuring overall welfare and their effectiveness and efficiency need to be assessed on a permanent basis.

Overall welfare depends on the creation and distribution of value. This awareness raises concerns about the promiscuity between institutional structures of power and individual interest across time. North (1991, p. 101) insightfully poses that “*establishing a credible commitment to secure property rights over time requires either a ruler who exercises forbearance and restraint in using coercive force, or the shackling of the ruler's power to prevent arbitrary seizure of assets.*” The author outlines the hardship inherent to raise an institutional environment that is stable and effective. In addition to this difficulty in finding out the adequate balance between overall social commitment and the institutional binomial regarding stability and efficacy, the literature also outlines how specific rules might spark unwanted responses of the economic agents. For instance, John (1984, p. 280) poses that “*as bureaucratic structuring increases, the lack of autonomy and self-control creates frustration*” and concludes that increased bureaucracy has a significant positive correlation with negative opportunistic behavior. The creation and distribution of value are affected. Hence, not only the design of the institutional environment needs to be taken care of, but its adequacy over time also requires continuous monitoring.

Summing up, several concerns need to be attained. First, the economist must acknowledge the relationship between the perception of an opportunity and the possession

of the executive power required to produce an action. Second, it is necessary to present the link between the existence of an opportunity and the making of a choice towards a particular course of action, either of positive or negative economic nature. Third, it is pivotal to identify specific institutional rules that channel human behavior while analyzing how positive opportunistic behavior is stimulated by them. Fourth, there is a need to present a consistent articulation between the fan of the identified institutional rules and methodologically check out how they combine with each other. And fifth, it is paramount to be aware that virtuous economics grasps the chain reaction produced by regular human behavior over a time span. The ultimate goal is to find the strongest institutional environment for answering the eleven basic economic questions and build the highest possible overall welfare.

Figure 1 displays a spider diagram where a number of variables impacting both the perception of an opportunity and the production of an active outcome are exhibited. Likely, the presented variables can be further extended. Nonetheless, Figure 1 enables a few interesting remarks.

Firstly, it is worth outlining that opportunistic behavior, O , directly depends on the combination of the crucial variables of perception, P , and executive power, $\&$, in a very precise way. Equation (1) illustrates the above-mentioned relationships.

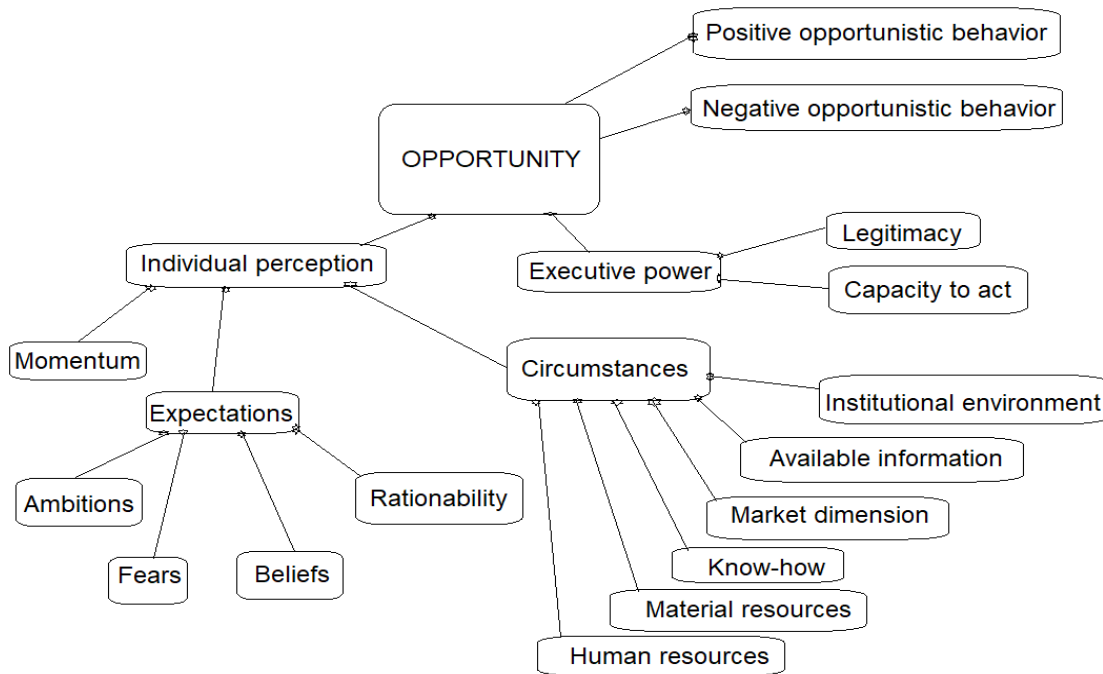
$$\begin{cases} O(P, \&) \neq 0, P > 0 \wedge \& > 0 \\ O(P, \&) = 0, P = 0 \vee \& = 0 \end{cases} \quad (1)$$

Secondly, the number of variables impacting the individual's perception of the existence of an opportunity is quite extensive. It is possible to realize that perception depends on momentum (in the sense that the same individual is not always focused on getting a certain outcome at every moment of time); expectations (in the sense that individual idiosyncrasies and goals vary among people); and endogenous circumstances (in the sense that both information and resources are not homogeneous across the entire population). Note that expectations further depend on the individual's ambitions, fears, beliefs, and rationality (in the sense that some people act more emotionally based than others). Exogenous circumstances, in turn, depend on the institutional environment (that defines what is the individual either stimulated or inhibited to do); the available information (which further depends on advertising, announcements, deception, and inner knowledge); know-how; and, availability of both material and human resources.

Thirdly, an opportunity is never considered as such when the individual realizes that he or she does not have executive power. Having executive power means having both the

capacity and legitimacy to act. Having the capacity to act means that the individual identifies the opportunity and realizes that he or she can gather all the needed resources to go ahead. Lacking legitimacy to do it means that the individual knows how to do it and has the capacity for it, but he or she is not allowed to act by those empowered by society.

Figure 1. Spider diagram on the concept of opportunity



Source: Author's own creation

Figure 1 stands out that economic agents' perceptions of market opportunities are not homogeneous. Each human being is unique. Hence, given human heterogeneity, it is not conceivable that, for instance, momentum, expectations, and circumstances equally apply to every member of the population. The existence of a direct relationship between human behavior and the complexity inherent to the perception of an opportunity leads us to realize that it is not possible for every member of society to take advantage of all available opportunities at the same time. Despite subtle, the foremost conclusion economists can take from the analysis of Figure 1 is that developing overall welfare necessarily requires that all available opportunities be promptly taken by those who may detect them, or else society is bearing a cost. To reach this goal, for the individuals' perception of the opportunities are diverse among society, their members need to be free to act. Otherwise,

the opportunity is lost. Economic development is boosted under an institutional environment that extols individual freedom.

Utility and payoff

In this stage, it is useful to identify the outcome of opportunistic behavior as the payoff got by the individuals as a consequence of someone taking an opportunity. This payoff can be either positive (when it increases the individual's well-being) or negative (when it decreases the individual's welfare). By the same token, it is useful to consider the effect of the individual's behavior on the remaining society. Hence, we embrace the notion of utility, U , which can be of positive or negative nature (the latter is sometimes called disutility), and equally applies to an individual or to the remaining society.

This approach carts a simplification of what is recognized by the literature as true human behavior. We have seen above that opportunities are taken depending on human perception. Psychologists have shown that individual responses in presence of given stimuli do not depend much on the individual's state of wealth but on the difference between initial and final states of wealth instead.⁸ That is, an individual perceives an opportunity for well-being improvement when his or her wealth state is getting a positive increment rather than when it has an expectation of doing so. By this token, human behavior is uniformly channeled into a given behavioral path by gains and losses rather than by formal utilities.

An example of such a behavioral standard is presented by several tv shows worldwide, where participants prefer to immediately score a gain of \$2,500 rather than getting \$10,000 with a possibility of 25% and \$1000 with a possibility of 75%. In this example, the certainty of increasing the individual's wealth by \$2,500 is preferred to the highest expected value of \$3,250 presented by the gamble. Herein, due to its increased explanatory power, we will proceed using the formal utility notation, but keeping in mind a closer approach to what are the resulting payoffs.

A deeper understanding of opportunistic behavior leads us to realize that, whenever an opportunity is taken, its outcome has either a positive or negative economic nature, i.e., $U(O(\mathbf{P}, \&)) > 0$ or $U(O(\mathbf{P}, \&)) < 0$. We are aware that negative opportunistic behavior happens when an individual grabs an opportunity while being aware that he or she will end up worse off if every member of the society chooses to act the same way (such as stealing,

⁸ Among many others, interesting reading on this subject can be found at Kahneman (2003) "A perspective on judgment and choice: mapping bounded rationality" and Knez, Smith, & Williams (1985) "Individual rationality, market rationality, and value estimation."

cheating, engaging in monopolistic practices, bribing, etc). Hence, negative opportunistic behavior has a few peculiar characteristics: 1) the opportunity that individual i identifies leads to action if, and only if, the individual i believes that the remaining members of society do not act similarly at once; 2) negative opportunistic behavior provides a positive outcome (a gain) to the member of the society taking the opportunity while inflicting a negative outcome (a loss) to other members of society; 3) the victim of negative opportunistic behavior is strongly stimulated to engage thereafter in this sort of action;⁹ and, 4) negative opportunistic behavior must be accepted for it is not possible to measure if the individual is fully aware of the consequences of his or her actions to the remaining society.

Representing by $-i$ the remaining members of the society that are not choosing to take negative opportunistic behavior, and by i the individual engaging in negative opportunistic behavior, we realize that

$$[U_i(O_i(\mathbf{P}', \&')) > 0 \wedge O_{-i}(\mathbf{P}', \&') = 0] \Rightarrow [U_{-i}(O_{-i}(\mathbf{P}', \&')) = 0] < 0 \quad (2)$$

where $(\mathbf{P}', \&')$ is the set of conditions enabling individual i to take the opportunity.

Representing by j the elements of a partition P of the $-i$ members of the society that realize a utility loss as a victim of negative opportunistic behavior, we have

$$[U_i(O_i(\mathbf{P}', \&')) > 0 \wedge O_{-i}(\mathbf{P}', \&') = 0] \Rightarrow U_{j \in P}(O_j(\mathbf{P}', \&')) < 0 \quad (3)$$

We understand that these j individuals will be stimulated to engage in similar practices themselves because they have just scored a loss inflicted by the individual engaging in negative opportunistic behavior. Hence, in the future, they will likely be engaging in similar negative opportunistic behavior while the gain acquired by individual i is not overrated by the negative utility that this individual receives due to facing other society members engaging in similar practices. In this instance, we can represent the relationship as follows:

$$U_i(O_i(\mathbf{P}', \&')) \geq \sum |U_{j \in P}(O_j(\mathbf{P}', \&'))|_{O_i} \quad (4)$$

Negative opportunistic behavior is consistent in society while the initial relation

$$O_i(\mathbf{P}', \&') > 0 \wedge O_{-i}(\mathbf{P}', \&') = 0 \quad (5)$$

holds and the utility that is reached by each individual negative opportunistic behavior is not overcome by the perceived negative effect on the individual's utility due to other members of society engaging in the same kind of practices.

We come to several important conclusions. First, sensing an opportunity depends on perceptions, which can be accurate or not. Second, negative opportunistic behavior directly

⁹ Gundlach et al. (1995, p. 82) define opportunism as the human behavior encompassing negative opportunistic nature and pose that “*opportunism begets opportunism.*”

depends on asymmetric perceptions between the members of the society. Third, negative opportunistic behavior fosters further negative opportunistic behavior. Fourth, if the whole members of the society are not equally provided with similar executive power then negative opportunistic behavior can be perpetuated, favoring some members while detrimental to the remaining. Fifth, the best way to avoid negative opportunistic behavior is to provide an opportunity of positive nature that offers higher levels of utility to each society's member than the one presented by the opportunity inducing negative opportunistic behavior. This last conclusion is particularly relevant since it is directly related to the concept of opportunity cost. Society can inhibit negative opportunistic behavior by offering a higher rewarding opportunity of positive nature. Rather than punishment, it is on a reward-based economy that overall welfare is built.

Human behavior

Contemporary economics usually addresses human behavior by detailing individual choices and putting individual circumstances in the background. In this realm, it is possible to identify problematic behaviors such as principle-agent relationship, moral hazard, adverse selection, and social loafing, and to advocate measures to solve the consequences of such deeds, while forgetting that it might be possible to intervene in the causes (circumstances) behind such behaviors. Rational measures are intended to solve emotional-based dramas that are grounded on asymmetric information. Hence, often at a higher cost, the economist is, sometimes, trying to condition the choice while neglecting that the problem lies in a misunderstood emotional fact.

Fear and greed are two of the most powerful emotions that condition the behavior of every human being.¹⁰ Greed stimulates people to grab available opportunities. Fear alerts for the possible negative consequences of a given course of action. Fear and greed establish the unbreakable risk-reward bond. Accordingly, the emotional state of every society member affects the way choices are taken, and, therefore, it also defines how society deals with the available opportunities. Further, either inadequate fear or greed foster mistaken choices. Economic behavior directly depends on society's emotional state.

By realizing that emotional states condition human actions, we can put forth that the way a given regulatory framework is designed by a human being is driven by his or her own greed and fear. Once having the opportunity of ruling society is, itself, a propitious circumstance for the ruler, we must accept that its final outcome to society can be of both

¹⁰ See Damásio, A. (1999) "*The feeling of what happens*" and Lo, A. W. (2011) "*Fear, greed, and financial crises: A cognitive neuroscience perspective.*"

positive and negative economic nature. Moreover, as above-mentioned, the ruler might not be aware of the final negative effect on overall welfare due to the new institutional framework he or she is about to create. So, on a permanent basis, mankind needs to supervise the chosen institutional framework for avoiding jeopardizing welfare.

In this vein, any kind of formal or informal set of rules that condition human behavior is an institutional framework. The notions of “right” and “duty” are herein exacerbated and the idea of “freedom” starts to find its boundaries. Realizing that every opportunity depends on the available circumstances, it is noteworthy that a methodological study of the relationship between human responses and the enacted institutional environment is paramount.

The eventual loss of freedom to act at will impacts the way humans take advantage of available opportunities. However, in a much more subtle way, the institutional framework may also constrain the way choices are taken by presenting specific risk-reward situations which do not fit the black and white definition of what is or is not allowed to do. For instance, defining a fixed-amount penalty for those who pollute a river might not be enough to prevent someone from doing it, even under a serious risk of being caught in the flagrant offense. In fact, the extension of the risk-reward relationship presented to the decision-maker is another form of regulatory framework impacting society’s welfare. The institutional framework sets the rules of the game.

The research defines “game theory” as “*the bag of analytical tools designed to help us understand the phenomena that we observe when decision-makers interact*” (Osborne & Rubinstein, 1994, p. 1).¹¹ Economics is aware that every decision-maker interaction depends on the circumstances faced when an opportunity exists. Moreover, economics realizes that the nature of the game takes several different characteristics. The game can be cooperative (where joint actions are allowed), non-cooperative (only individual actions are allowed), strategic (each player chooses his or her plan of action only once), extensive (when the decision-making process extends across multiple interactions), and with either perfect or imperfect information. Virtuous economics needs to identify the institutional environment that enables an effortless decision-making process towards positive opportunistic behavior, regardless of the game type each player is doing.

It is, thus, required that we consider a number of possible games people engage in to conclude on the most effective set of institutional rules for driving human behavior into a positive strand. We begin by defining the concept of economic utility (U) as a function of

¹¹ See Osborne, M. J., & Rubinstein, A. (1994) “*A Course in Game Theory*.”

both consumption (c) and leisure (l). Each society's members is assigning a positive feeling to either being able to enjoy material goods or appreciating pleasure time doing something he or she likes to do. Hence, each decision-maker is considered to be making rational decisions in the sense that individual i will be maximizing $U_i(c,l)$ every time an opportunity to do so is detected. The payoffs are the utilities that each player expects to get when considering the available possibilities.

The analysis of human behavior under a given set of circumstances aiming at maximizing expected utilities (payoffs) is required to conclude how effective is any measure designed to improve overall welfare. According to Figure 1, executive power is one variable impacting how humans take advantage of opportunities. Moreover, research shows that both human behavior in general and economic efficiency, in particular, depend upon a given organizational context.¹² Hence, a deeper inquiry at the human responses to a given set of stimuli is mandatory.

A very interesting exercise was produced by the riddle known as “The pirates and their booty.”¹³ This exercise allows for concluding about the effects of executive power on humans' decision making-process.

Problem: “The pirates and their booty.”

Context: Five pirates got a booty of 100 gold coins which must be divided by them.

Institutional rules:

- 1) The oldest among them proposes a way to divide the riches.
- 2) Afterward, all pirates vote on the proposal.
- 3) The loot is divided as proposed if the proposal gets polling of 50% or higher.
- 4) If the proposal is rejected the pirate who made it is killed.
- 5) The next oldest pirate is then asked to make a proposal, and the evaluation process repeats.

Beliefs:

- 1) Pirates care only about their life and their money.
- 2) All else equal, they rather kill than make an agreement, for they do not trust each other.
- 3) All pirates are highly logical and consider every possibility.

Challenge:

If you were the oldest pirate, what would be your proposal?

¹² See, among many others, Williamson, O. E. (1981) “The economics of organization: The transaction cost approach;” Greenwood, R., & Hinings, C. R. (1996) “Understanding radical organizational change: Bringing together the old and the new institutionalism;” and Peng, M. W. (2003) “Institutional transitions and strategic choices.”

¹³ Available online at <https://www.popularmechanics.com/science/math/a25367/riddle-of-the-week-17/>

This is a strategic game under perfect information, where all pirates know exactly how the remaining opponents are analyzing the problem. Hence, the outcome of any poll can be accurately foreseen by any pirate before making a proposal. Figure 2 displays the possible approved distributional proposal and the optimal distribution according to the executive power held by the oldest pirate. The “x” signals a dead pirate. Pirates are labeled from “A” to “E”, where “A” is the oldest pirate and “E” is the youngest one.

Given the institutional environment faced by the pirates, each oldest pirate is able to get favorable suffrage in a number of possible proposals. One possible solution available for the oldest pirate is trying to save his life by proposing a distribution of 50 coins to two other pirates and none to the remaining. This proposal will get 60% voting as shown from possibilities ‘vi’ to ‘viii’ in Figure 2. Another possible solution would be to decide to evenly split the loot among the five pirates. This proposal would get 80% support, being rejected by pirate “B” only. Note that possibility ‘v’ is better for pirates “C,” “D,” and “E” than the alternative of having pirate “A” dead, for they are aware that pirate “B” would be getting almost the entire loot in that instance. Therefore, pirate “B,” because he is next on the rank holding executive power, is the only one rejecting an even distribution of the coins.

Figure 2. Possible proposals for loot distribution

Optimal Distribution						Poll						Result	
	A	B	C	D	E	A	B	C	D	E		Approved	
i	x	x	x	100	0	x	x	x	1	0		50,00%	
ii	x	x	99	0	1	x	x	1	0	1		66,67%	
iii	x	99	0	0	1	x	1	0	0	1		50,00%	
iv	98	0	1	0	1	1	0	1	0	1		60,00%	
Possible Distribution													
v	20	20	20	20	20	1	0	1	1	1		80,00%	
vi	0	0	50	50	0	1	0	1	1	0		60,00%	
vii	0	0	50	0	50	1	0	1	0	1		60,00%	
viii	0	0	0	50	50	1	0	0	1	1		60,00%	

Source: Author’s own creation based on popularmechanics.com

All pirates are reasoning considering the possibility of killing each other. They know exactly who will be making a proposal at each round and how that proposal will be voted. They know they are all highly logical thinkers and, therefore, they can anticipate what will be their own final outcome according to how distant they are to be the ones holding executive power. Optimal solutions are presented from ‘i’ to ‘iv.’ Hence, the solution that

maximizes pirate “A”’s immediate return, and that will be approved in the voting, is 98 coins to “A” and one single coin to both pirates “C” and “E.” Note that pirates “C” and “E” know that they end up better than with the option of killing pirate “A”, so they will support the proposal made by the oldest pirate.

This riddle enables several interesting conclusions and a subtle reflection. First, being all else equal, having executive power is a crucial variable impacting human behavior. Second, the person holding executive power is aware that he or she has a fan of opportunities that are not available to the remaining society. Third, under a given institutional framework, it is expectable that all society members will act similarly once holding the executive power.

The subtle reflection enabled by the above exercise is that humans are not highly logical. The average person is unable to figure out the optimal solution without a deep analysis of the problem. However, human behavior tends toward the optimal solution. After understanding the mechanics behind the reasoning that provides the highest outcome, the decision-maker pursues the optimal solution every time a similar opportunity is detected. People learn how to think.

Thinking about the possibility of changing the institutional rules faced by the pirates provides important clues on how to foster positive opportunistic behavior from bloodthirsty persons who seek selfish goals only. Figure 3 depicts a number of possible institutional rules leading to a less severe concentration of riches on just one small fraction of society. The pirates’ context, beliefs, and goals are exactly the same as previously. Only institutional rules change.

The scenarios presented in Figure 3 emphasize the important effects on human behavior coming from holding executive power. These effects regard both the decision-making process and the design of institutional rules to provide specific payoffs to society. Scenario 1 shows that when executive power is widespread by more than one society member, the distribution of payoffs tends to be wider. Scenario 2 evidences that when the members of a society are called to vote on a wide number of propositions, they hardly reach polling of 50%. People do not tend to reach an understanding when they are all equally free to present a proposal and then submit it to universal suffrage. Scenario 3, presents a situation where all society members, despite being highly bloodthirsty and logical people, unanimously present the same proposal which they all, selfishly, consider to be the best for themselves. In this instance, each pirate is allowed to submit a proposal while expecting that his or her proposal is going to be lucky. If a pirate chooses to put a

distribution such as “100 coins to the number one picker and none to the remaining” he or she is well aware that this proposal has only a 20% chance of being successful. Hence, the expected value of the proposal is 20 coins. However, in this case, and with a 25% chance, he or she risks being killed if someone picks such a proposal. The only way to grab the same payoff of 20 coins without risking their lives is by suggesting a fair division of the loot. The design of the institutional rules people choose to abide by has a very strong economic effect.

Figure 3. Institutional rules for improving pirates’ overall welfare

Scenario 1: i) The two oldest pirates make a proposal each and at once.

ii) The proposals are subject to suffrage.

iii) If both proposals are rejected then the two oldest pirates are killed.

Proposed Distribution						Poll						Result	
	A	B	C	D	E	A	B	C	D	E		Approved	
C	x	x	49	50	1	x	x	1	1	0		66,67%	
D	x	x	50	49	1	x	x	1	1	0		66,67%	
A	49	49	0	0	2	1	1	0	0	1		60,00%	
B	49	49	0	0	2	1	1	0	0	1		60,00%	

Scenario 2: i) All pirates make a proposal to society.

ii) The proposals are presented to all and then submitted to suffrage.

iii) The proposal with the highest polling is chosen.

Proposed Distribution						Poll						Result	
	A	B	C	D	E	A	B	C	D	E			
A	20	20	20	20	20	1	0	0	0	0		20,00%	
B	32	34	34	0	0	0	1	0	0	0		20,00%	
C	49	0	49	0	2	1	0	1	0	0		40,00%	
D	0	0	49	50	1	0	0	1	1	0		40,00%	
E	0	35	35	0	30	0	1	0	0	1		40,00%	

Scenario 3: i) All pirates make a proposal to society.

ii) The proposals are then randomly chosen under a fair lottery, each pirate picking one proposal.

iii) The pirate with the highest amount of coins is allowed to kill one of the others while getting his or her share.

Proposed Distribution						Poll						Result	
	1	2	3	4	5	A	B	C	D	E			
A	20	20	20	20	20	1	1	1	1	1		100,00%	
B	20	20	20	20	20	1	1	1	1	1		100,00%	
C	20	20	20	20	20	1	1	1	1	1		100,00%	
D	20	20	20	20	20	1	1	1	1	1		100,00%	
E	20	20	20	20	20	1	1	1	1	1		100,00%	

Source: Author’s own creation

This economic effect is easily perceived because it directly impacts the dimension of the available market. For instance, considering a loot distribution such as $\{A=98, B=0, C=1, D=0, E=1\}$, the market available for someone who studies the possibility of open a bar on the pirates' beach is significantly smaller than the market available where the booty distribution is more like $\{A=20, B=20, C=20, D=20, E=20\}$. The former investment is severely less promisor than the latter. The literature extensively outlines the importance of the aggregate demand to conditioning entrepreneurship success,¹⁴ making the distribution of payoffs a foremost economic concern.

It is, therefore, possible to think about a different set of rules that may lead to the healthiest optimal welfare among the pirates' society. Herein, within the presented scenario, it is plain that the institutional rules accepted by the pirates' society foster negative opportunistic behavior. All pirates want to be holding executive power to get at least 98% of the loot while leaving the remaining portion of the society doomed to either die or barely survive. As we have seen before, this situation is not sustainable in the long run if further interactions are to happen in the pirates' society. It is likely that pirates "B," "C," "D," and "E" will never engage in another plunder with pirate "A," for their efforts were not duly rewarded in this instance. Undoubtedly, executive power and payoffs constrain human behavior. However, virtuous economics acknowledges the importance of the institutional environment to previously set up humans' possible response to every opportunity in a positive tone.

The economic game

The perception about the payoffs presented by an opportunity may vary between an exact certainty and a slightly possible outcome. Nonetheless, uncertainty might be considered by assigning a probability of occurrence, α , to each possible foreseen payoff, p , presented by each scenario of an opportunity, k , and calculating the likely payoff as the $\sum \alpha_k p_k$. This allows us to incorporate uncertainty even when using a single payoff value. Therefore, without loss of generality, it is possible to rank the utility associated with an opportunity by using singleton values.¹⁵

¹⁴ For instance, Palazuelos & Fernández (2008, p. 13), state that "*aggregate demand determines effective production and structurally conditions the performance of productivity through three channels or effects: scaling, capitalization, and modernization.*"

¹⁵ Interesting reading on this matter is provided by Tversky & Kahneman (1992) "Advances in prospect theory: Cumulative representation of uncertainty" who pose that the decision maker constructs a representation of the circumstances relevant to his or her decision, assesses its value, and chooses accordingly.

Let us consider the payoffs brought out by an economic game as Figure 4 is showing. In this game, the society is composed of two people who distribute among themselves the outcome of their labor for one year. The two persons are free to choose between either cooperating with each other in the production of goods and services or competing to see who can take the bigger portion of the entire production. Further, the product of their labor efforts is higher if they cooperate with each other. What is their choice: to compete or to cooperate?

Analyzing each player's best choice provides a clue to what is the most likely option taken by them. Each cell displays the players' payoffs according to the format player_1, player_2. Hence, when both players choose to compete, they both end up with 50% of society's total production, reaching a utility level of 5. However, if player_1 chooses to compete while player_2 chooses to cooperate, player_1 will be grabbing 70% of society's total production to himself. So, to maximize his or her utility, player_1 natural option is to compete. However, let us consider that player_1 is a risk-averse person and wants to minimize losses. In this scenario, player_1 realizes that the most dangerous option happens when he or she chooses to cooperate and player_2 chooses to compete. In this case, player_1 prefers to compete because he or she is granting a higher payoff than the alternative of cooperating in a situation where player_2 might choose to compete. Since both players face the same problem and possible payoffs, their likely option is to compete rather than cooperate.

The payoffs of the economic game are presented in Figure 4 for each interaction among the players. Now, if both players realize that they are going to interact for a number of periods in the future, will they keep their choices?

Figure 4. The economic game

		Player_2	
		Compete	Cooperate
Player_1	Compete	(5,5)	(7,3)
	Cooperate	(3,7)	(6,6)

Source: Author's own creation

Consider the possibility of an agreement between the players towards mutual cooperation. In this instance, both players will be expecting to reach a utility level of 6 while being tempted to compete, for it immediately yields a higher payoff of 7. Let us say that player_1, unilaterally, chooses to break the agreement. After player_1's betrayal,

player_2 will never again engage in an agreement. Considering four periods, we will have a player_1's total payoff of 22 ($=7+5+5+5$) while player_2's total payoff is reaching 18 ($=3+5+5+5$). Since, in this game, each period is set to one year, had the players rejected the choice for deception and they both would have ended up better in only four years, yielding a total payoff of 24 each ($=6+6+6+6$). In this instance, just like what happens in the pirate's riddle, what seems to be the optimal strategy for a one-time decision cannot be a long-term winner. The individual who chooses to become economically competitive is, in fact, a loser.

The above economic game illustrates the positive dependence between both players to reach higher levels of utility (or welfare). Moreover, it stands out how humans' lack of logical thinking leads the decision-maker to make mistakes. The economic game highlights how fear and greed combine with impatience to produce betrayal. It is worth noting that, in a four-year scenario, after Player_1's betrayal, he or she ends up scoring an accumulated payoff of 22 while player_2 finishes the four-year period holding 18. Further, player_1 will be scoring a higher payoff as soon as possible and will be living significantly better than player_2 during the first year only. However, if both players chose to engage in cooperation mode then they both end up better after the four-year period. By cooperating, both players will be holding the payoff of 12 after two years, which is the same payoff that player_1 will hold in year two by choosing to betray. In the presented economic game, betrayal constitutes negative opportunistic behavior because it leads the decision-maker to end up worse off if the remaining members of the society act alike.

Worldwide, in our current economic template, the existence of a positive relationship between employers and employees to reach higher levels of productivity is hardly refutable.¹⁶ Following this guideline, Ishikawa (2003, p. 7), in a very interesting assertion, poses that *“economic prosperity, stability, and social progress cannot be achieved by governments, employers or workers acting alone.”* However, acting together demands overcoming some hardships. The author fingers the wound by outlining that the *“major difficulty lies in the lack of basic agreement on an economic analysis to solve the economic problems that each country faces”* (...) *“unless parties agree to go beyond such analytical fault lines and concentrate pragmatically on problem-solving, it is difficult to arrive at a consensus on policy responses”* (Ishikawa, 2003, p. 19). Hence, economic development depends on how the society takes advantage of the opportunities, deals with the inherent

¹⁶ See Pender, E. R., Elgoibar, P., Munduate, L., Garcia, A. B., & Euwema, M. C. (2018) “Improving social dialogue: What employers expect from employee representatives;” and Ishikawa, J. (2003) “Key features of national social dialogue: A social dialogue resource book.”

costs, fully realizes the available payoffs across time, and decides to work together for reaching overall welfare.

Theoretically, it is now possible to pose a few remarks: 1) institutional rules channel human behavior; 2) human behavior interactions depend on how institutional rules combine among themselves; 3) the sum of the perception of an opportunity with executive power sparks human behavior; 4) human behavior can be of either positive or negative economic nature; and 5) human behavior often extends over time under a chain reaction that consistently defines overall welfare. These five topics of analysis ground institutional economics.

To relate the above theoretical apparatus with the daily institutional environment every citizen has to deal with, we have to analyze the institutional rules that condition human behavior. The relevant economic behavior impacts the way aggregate supply and demand meet in the markets. Inadequate rules, as we have seen in the “pirates’ riddle” example, foster unbalances towards favoring some members of society detrimentally to the remaining. These rules directly impact the performance of every economy. It is, therefore, paramount to focus on the specific rules applying to the market for goods and services, to the labor market, and to the money market, for those are the ones impacting society’s ability to consistently deliver an overall welfare improvement.

A reward-based system

Before identifying the specific economic rules that rail economic behavior into a positive mode, it is mandatory to inquire about the sources of opportunistic behavior while maintaining a neutral guideline. Its importance rests on the concept of opportunity cost. Considering that virtuous economics aims at optimizing overall welfare and that the highest possible cost society can suffer is the loss of an opportunity, then society must learn how to make sure that every opportunity is taken.

The analysis is mainly split into four specific strands of the problem: its causes, its theoretical framework, the type of induced individual behavior, and the type of behavior society aims for. This approach seeks insights on why consistent negative behavior has been produced throughout generations, despite the evil brought within.

Opportunism is at the core of economic behavior, and it can be of negative or positive nature. Herein, we are just scratching the surface of the determinants of human behavior. We are focusing on the knowledge disclosed by other sciences which can help economics to increasingly understand the effect of the institutional environment on the

economic agents' decision-making process. We seek to grow our wisdom on what actually guides human behavior. Moreover, we want to identify the typology of a governance structure that fosters positive opportunistic behavior while inhibiting negative opportunistic behavior.

One particularly relevant contribution is given by the extensive literature on bounded rationality produced outside of the economics field. It is widely recognized "*that human decision-makers do exhibit rationality, but only within the constraints of their perception of a decision problem*" (Taylor, 1975, p. 409). Among the fan of identified determinants of bounded rationality that explain why humans make non-optimal choices, there are two approaches of immediate application in the economics realm: 1) the shape of the value function that each individual exhibits when aiming to produce a judgment or a choice; and 2) the existence of a cognitive strain, which refers to the interaction between the characteristics of the decision-maker and the ones presented by the environment.¹⁷ The former explains both why payoffs are determinants of the individual economic choice and why losses produce such a magnified effect in comparison with the value assigned to a gain. The latter is generally related to the high levels of stress that an individual can feel due to being loaded with an amount of information that overcomes his or her processing capacity. Accordingly, the individual adopts compensatory choice modes, looking to reach satisfactory solutions while widely aware that those are likely non-optimal. Both of them provide a definitive contribution to identifying the adequate set of rules that fosters positive opportunistic behavior and inhibit negative opportunistic behavior.

The shape of the individual's value function provides an important understanding of the efficacy of an institutional system to channel opportunistic behavior into a positive mode. Kahneman (2003, p. 705) states that "*the value function is defined on gains and losses and is characterized by four features: (a) it is concave in the domain of gains, favoring risk aversion; (b) it is convex in the domain of losses, favoring risk-seeking; (c) most important, the function is sharply kinked at the reference point and loss averse – steeper for losses than for gains by a factor of 2-2.5 (Kahneman, Knetsch & Thaler, 1991; Tversky & Kahneman, 1992) and (d) several studies suggest that the functions in the two domains are fairly well approximated by power functions with similar exponents, both less*

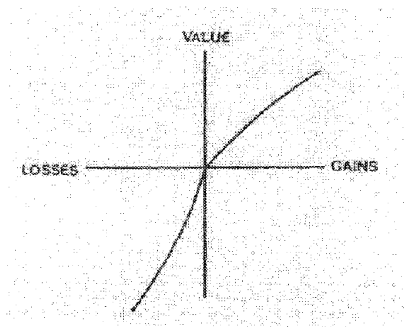
¹⁷ See, among many others, Taylor, R. N. (1975) "Psychological determinants of bounded rationality: implications for decision-making strategies", Kahneman, Knetsch, & Thaler (1991) "Experimental tests of the endowment effect and the Coase Theorem," Tversky, & Kahneman (1992) "Advances in prospect theory: Cumulative representation of uncertainty" and Kahneman, D. (2003) "A perspective on judgment and choice: mapping bounded rationality."

than unity (Swalm, 1966; Tversky and Kahneman, 1992).” The shape of the value function poses a few interesting remarks.

First, considering that the individual does not assign a similarly positive and negative value to the same absolute payoff, then a penalty based on a pecuniary instrument, such as a fine, does not have the synonymous effect of a gain of similar absolute value. Moreover, given the steepness of the function in the domain of losses, and considering the value assigned to a given positive reward, when the individual is holding a positive gain, then he or she perceives a real loss of half of that gain as if having lost everything. This very relevant fact means that small fines are enough to prevent negative opportunistic behavior once a positive reward is already in place.

Figure 5. The value function

The Value Function of Prospect Theory



September 2003 • American Psychologist

Source: Kahneman, D. (2003) “A perspective on judgment and choice: mapping bounded rationality”

Second, the effect of a pecuniary-based punishment to foster positive opportunistic behavior depends on the individual’s initial endowment of value. A \$100 fine for speeding up on the highway exerts a completely different effect on a rich person who is entitled to an above-average income than the pain that is felt by the low-income individual.¹⁸

Third, if an opportunity presents the possibility of a gain big enough to overcome the potential perceived loss, then the opportunity is likely to be taken. This is a typical

¹⁸ In 2010, a \$290,000 speeding ticket slapped on a millionaire Ferrari driver in Switzerland was considered fair and well-deserved. The trend of issuing punishments based on a person’s wealth is developing. Yet, it is a procedure that requires a higher degree of social integration and technological development. See <https://www.nbcnews.com/id/wbna34792272>.

situation of negative opportunistic behavior. The reason for the person to be weighting a risk-reward relationship rests on the awareness that the action, despite being positively attractive for himself or herself, still might cause a negative effect on others. In this instance, the person is fully aware that the symmetrical situation is one that he or she would like to avoid.

Fourth, in what concerns the focus on building overall welfare, it is plain that individual well-being consolidates much more by avoiding a loss than by scoring a gain. However, there is no meaning in avoiding losses unless there is some positive value already on the table. That is, there is nothing good to be reached with a rule that punishes someone who does not possess a prior endowment of well-being. Contrariwise, negative opportunistic behavior spurs further negative opportunistic behavior.

Positive opportunistic behavior, in turn, fully depends on knowledge and creativity. Looking at the environmental circumstances and figuring out what can be done to improve an individual's well-being always appeals to putting together some dosages of knowledge and imagination. And positive opportunistic behavior, the one that increases the person's welfare if replicated by the other members of society, is what consolidates economic development. Hence, the room that is given for society's members to consistently use their visions and ideas to pursue new achievements is a very important component of a successful institutional environment.

The problem posed by cognitive strain is split by Ronald N. Taylor into four different components: problem formulation, problem diagnosis, information aggregation, and preference aggregation. The author explains that individuals "eclectically choose a combination of techniques appropriate to the problem" (Taylor, 1975, p. 419) trying to develop simplistic representations of the trouble and getting closer to the optimal solution as much as possible. These might be by decomposing the problem into the semi-independent components according to their functional parts, classifying the problem's constituent factors as either controllable or uncontrollable, using the information to estimate likelihood ratios while avoiding conservatism in the decision-making process, and specifying a set of constraints prior to the decision-making process whilst releasing the decision-maker from a large number of calculations. Under the presence of cognitive strain, people resort to strategies of raising a regulatory framework that allows them to depart from rationality while keeping a sense of proximity to the best solution.¹⁹ Hence, an effective governance structure to channel opportunistic behavior into a positive mode must

¹⁹ This notion is further consolidated by Tversky & Kahneman (1992) who pose that people employ a variety of heuristic procedures to simplify their decision-making process.

be able to relieve cognitive strain from the decision maker's mind while aligning behavioral standards to optimize overall welfare.

The hither approach considers society as the relevant organization to secure overall welfare. In this vein, it embraces the interests of the firm, the employee, the government, and the monetary authority, under mutual and proportional regard. Accordingly, the interest of the individual is at the forefront of the analysis whatever the economic actor's vested type. Bearing in mind that a given set of rules is designed to channel opportunistic behavior into a positive mode, and those rules are equally applied to the entire society, then the consistency of the legislation to reach this goal must require a shared commitment among the whole of its members.

We are, therefore, seeking to identify a socio-economic governance structure that is considered valuable by each society's member. Being this tool highly significant to channel human behavior into a given chosen path, it inevitably acquires an educational nature. Accordingly, there are a number of attributes that this institutional tool exhibits in order to exert its function. These attributes are, at least, as follows: 1) foundations; 2) methodology; 3) legislation bias; 4) power distribution; 5) legal enforcement; 6) room for creativity; 7) induced opportunistic behavior; 8) dominating behavior; and 9) payoff consistency. By looking at the current existing governance structures through the lens of each of these attributes, and harmonizing it with the insights provided by the literature regarding the decision-making process, we aim at identifying what are the grassroots of a consistent overall welfare.

The efforts of those empowered to rule society have always been grounded on a given set of rules.²⁰ This institutional framework is based on formal and informal structures designed and accepted to convey social stability and progress. Social stability requires a general sense of well-being. Progress, in turn, rests heavily on technological improvement, human creativity, knowledge, and existing infrastructures, which are all heterogeneous across society. Educational structures evolved for ensuring a given behavioral path from the society's members and exert their power through two possible methodologies: by inflicting a penalty to those who exhibit behaviors considered offensive to the institutions in power; or by rewarding those who exhibit a behavioral aligned with the social mainstream. And that is how payoffs acquire their strong bonds with the institutional environment.

²⁰ A very interesting paper on the evolution of society's bureaucratic organization and its normative and structural components, can be found in Olsen, J. P. (2007) "The ups and downs of bureaucratic organization."

The foundations of the existing socio-economic institutions around the world rest on authority and control. Johan P. Olsen (2007, p. 28) states that “*codes of right and wrong, true and false, legal and illegal make officials and citizens, as members of a community, feel an obligation to obey authority and laws produced through appropriate processes.*” In the same vein, Paul S. Adler (1999, p. 38) poses that the more familiar type of bureaucracy “*serves the purpose of coercion and compliance.*” While the former author addresses the quest of a community to ensure that its members behave within a shared set of appropriate behaviors, the latter deals with the managers’ worries about ensuring that reckless, incompetent, or irresponsible employees do the right thing. The society intends to prevent negative opportunistic behavior.

Society’s usual tool to raise fences against negative opportunistic behavior is by resorting to some form of penalty. Specifically, a number of enforcement structures are deployed to safeguard that negative opportunistic behaviors such as stealing, cheating, and other dishonest actions are actively punished if an individual resorts to this type of action. Once the offensive behavior occurs, in the large majority of the countries (if not all), the punishment happens regardless of the individuals’ motivation or justification to engage in such deed. Hence, the penalty decreases the offenders’ welfare and is intended to act as a warning to the remaining society. In this instance, the penalty is unrelated to the prior existence of any reward.

But authority can give room to autonomy without losing control. In the management realm, Adler (1999, p. 38) poses that there is a second type of bureaucracy that serves the purpose of “enablement,” where “*bureaucratic structures and systems function to support the work of the doers rather than to bolster the authority of the higher-ups*” and “*the increased formalization of work roles tends to increase satisfaction and commitment.*” By this token, the perception of a reward becomes a relevant variable within bureaucratic structures.

Economics has deeply studied the effects of the costs of transactions within the firm’s domain, posing negative opportunistic behavior as a strong component of that cost. Williamson (1981, p. 554) defines that “*opportunism makes provision for self-interest seeking with guile,*” outstanding the individual’s action to satisfy self-interest with no regard to other people’s feelings and positioning the contract as a key tool to increase economic efficiency. The use of this defensive mechanism against negative opportunistic behavior (in the sense that this kind of opportunism decreases the individual’s welfare if the behavior is replicated in society) is, therefore, focused on defining what the parties

promise to each other while clearly setting up what are the penalties to the party who breaks the agreement. In this instance, the contract settles an initial relationship based on mutual benefits while the penalty only occurs in case of default. Hence, it follows that individuals' behavior is based on mutual interest according to the perceived payoffs at hand. And the penalty, in case of default, is aimed at decreasing the offenders' reward.

For example, consider a buyer who is signaling the purchasing of a real estate property for \$500,000 by providing a front payment of \$10,000. Contractually, it is stated that the buyer loses the \$10,000 paid upfront if the individual quits the deal. The clause is meant to reduce the buyer's reward in the eventuality of coming to find a cheaper house before concluding the deal with this first seller.

There are, therefore, two different methodologies used by mankind to channel the opportunistic behavior of its society's members: a penalty-based system and a reward-based system. The penalty-based system applies a penalty whenever someone does something offensive according to the formal or informal legal environment. It is based on authority and control. It does not depend on the existence of prior positive payoffs to the individual. It demands the existence of a powerful lawmaker who defines what is and what is not proper behavior. The reward based-system, in turn, leaves people free to engage in any agreement of their choice just as long as they do not do something offensive to others. In this case, the individual's welfare diminishes. It is based on autonomy and control. It depends on the existence of previous positive payoffs. It does not require the existence of a powerful lawmaker defining what is and what is not proper behavior but rather needs a judiciary structure to resort to in case of breach of an agreement. Hence, a reward-based system requires a higher level of socio-economic organization to be effective. While the negative payoff is the favorite instrument of a penalty-based system, the positive payoff is the leading vehicle of opportunistic behavior in the reward-based system.

We are now in conditions to sketch the minimal requirements of an institutional environment designed to improve overall welfare. The penalty-based system, by stating that people are free to do whatever is wanted just as long as nothing offensive to others is done, requires the emergence of an authority who serves both the purpose of defining what is offensive, what is not, and what is the extension of the penalties to be applied in case of default. Of course, under this system, power tends to be over-concentrated in those who make the laws and in those who control for legal obedience. It stays clear that it is highly likely that lawmakers easily escape compliance. This system inhibits people's creativity for

they fear being offensive to those holding power.²¹ Nevertheless, people are induced to break the law if the perceived reward overcomes the enacted penalty. Hence, creativity is used in either a positive or a negative way. The individual is only evaluating the possibility of grabbing an immediate payoff and getting away with it, regardless of the possibility of causing harmful consequences to somebody. Essentially, in view of the above, penalty-based systems focus on the immediate payoff, while fostering actions of deception, betrayal, and power disputes. The individual is prone to compete rather than to cooperate unless the immediate payoff justifies otherwise.

On the other hand, the reward-based system, by stating that people are free to do whatever they wish while being aware that their reward diminishes if they perform an offensive action against someone else, is grounded on autonomy and control. Power tends to be spread all over the community and those who make the law cannot rest above the law. Law tends to be equally applied to all society's members. Under this system, people are spurred to be creative and to look for ways of improving their living conditions while improving other people's well-being as well. Creativity is, therefore, used in a positive way. The opportunity is perceived and pursued under a goal that is, simultaneously, individual and collective. Hence, the reward-based system focuses on long-term payoff, and respect tends to dominate the human behavior of those who live in such an institutional environment.²²

Table 1 shows how the two institutional systems differ according to the above-mentioned attributes.

Notwithstanding the theoretical exposition, a numeric example, coming from a regular daily practice, always helps to quantify their disparate effects on the overall welfare. We can consider the simple example of the usual functioning of a car insurance contract. The rules herein applying are as follows: 1) premium is calculated by the insurance companies based on the average damage cost, the average number of annual claims, the total number of contracts, and a margin of 10% of the annual total damage cost

²¹ See Adler (1999) "Building better bureaucracies." The author argues that coercive and enabling forms of bureaucracy vary in the approaches to the design process, structural features, and implementation contexts while explaining when to use which form.

²² Psychology has shown that "*respect is a basic form of social evaluation that emerges in group interactions and that it plays an important role in shaping not only social engagement in group life but also the self-esteem and well-being of the individual*" (Huo & Binning, 2008, p. 13). Feelings on respect concerns how worthy is the individual as a group member and how much is he or she liked by others. Respectful treatment increase the individual's perception of being accepted and part of a group and it is possible to predict and explain significant aspects of a person's behavior based on reported feelings on respect. Specifically, the literature finds a positive relationship between less respectful treatments felt by a person and the likelihood of engagement in some form of violent behavior.

for administrative expenses; 2) in case of a customer's claim, the premium is increased 20% for two years regardless of the claim's cost to the insurance company; 3) there are four insurance companies operating in the market; 4) there are 10,000 active cars in the market; 5) car owners are obliged to celebrate an annual car insurance contract for eventual damages caused to others; 6) average claim frequency is 5% of total contracts; and 7) for simplicity, and without loss of generality, poor driving record is not considered for premium calculations. These rules are not far from the general functioning of the car insurance market in many world markets.

Table 1. Penalty-based system versus Reward-based system

Attribute	Penalty-based system	Reward-based system
Methodology	It leaves people free to do whatever they want just as long as they do not do something offensive to others. In this case, a penalty applies, which diminishes the offender's welfare.	It leaves people free to do whatever they want just as long as they do not do something offensive to others. In this case, the reward suffers a decrement through which the individual's welfare diminishes.
Legislation type	Focused on duties and penalties.	Focused on rights and rewards.
Foundations	Based on authority and control.	Based on autonomy and control.
Power distribution	Power tends to be over-concentrated in the lawmaker.	Power tends to be spread all over the community and those who make the law cannot rest above the law.
Legal enforcement	Law is often inapplicable to both lawmakers and defaulters.	Law applies equally to every member of society.
Room for creativity	It inhibits people's creativity for they fear being offensive to either lawmakers or authorities.	It spurs people to be creative in making better their way of living while improving others' welfare as well.
Opportunistic induced behavior	People are induced to break the law when the reward overcomes the penalty.	When evaluating the risk-reward payoff of an immediate opportunity, people are induced to consider future welfare decreases before breaking the law.
Dominating behavior	Deception, betrayal, and power dispute.	Respect and enthusiasm.
Payoff consistency	Focus on the immediate payoff.	Focus on the long-term payoff.

Source: Author's own creation.

Generally, car insurance rates depend on the overall expected damage cost added with the insurance company desired gross profit margin, being this sum divided by the total number of contracts. In case of a claim, customers are “punished” with an annual premium increment during a given period of time. On the other hand, the insurance company’s work is rewarded with 10% of the cost of total expected damages caused by its customers. Finally, the entire society stays safer and is aware that, up to a very unlikely great damage, every accident is more easily overcome by those who unfortunately made part of it. It is thus required to analyze if this set of rules mainly frames a penalty-based system or a reward-based system.

The example’s methodology consecrates the principle that every person that is buying a car must simultaneously acquire an insurance contract to protect against eventual damages caused to someone else. Therefore, the entire society is protected against eventual cars’ bad use. In this instance, a reward is, indeed, enacted to the benefit of the entire society. However, in case of a claim, the injured party is reimbursed by the insurance company while the damage-maker is punished with a 20% increase in the annual premium of his or her car insurance contract. Hence, the enactment of a cost-based penalty is an attribute of a penalty-based system.

Furthermore, it is worth noting that the legal framework presented by the example creates opportunities for customers’ fraudulent actions. If the customer has the option of protecting against his or her self-inflicted car damages, then he or she is induced to do so whenever the own car repair cost overcomes two years of 20% car insurance premium increase. Hence, deciding to perform a fraudulent action just requires the immediate analysis of the opportunity’s risk-reward relationship without further ado. Figuring out the outcome of such reckoning is easy, and deceptive actions towards the insurance company and the remaining society are likely to be put in place. Again, this is an attribute of a penalty-based system.

It is, therefore, presumable that a percentage of the community actually engages in fraudulent practices that lead the regular car insurance premium to be higher. We conclude that the rules of our example induce negative opportunistic behavior in the sense that every person is getting worse off the higher the number of individuals acting in the negative mode. These constitute attributes of a penalty-based system.

Tweaking this ism into a reward-based system requires a different methodology. Rather than applying a given cost over the annual premium in case of a claim, a reward-based system, by definition, applies a reduction of the reward in case of reimbursement.

This change forces the individual to consider long-term consequences when reckoning the payoff presented by the opportunity. Indeed, it is not possible to know exactly how much will be the eventual reimbursement someone might be entitled to in case of a car accident. If we consider a decrease of only 1% every time the causer of an accident in the present is entitled to a future reimbursement in a casualty where he or she is a victim, then how much will be the value of this penalty at present time? Not only it is hard to say, but it also demands a calculation that encompasses the probability of the individual's entitlement to a future huge reimbursement. Society is escaping from short-run rash decisions to embrace long-term weighted resolutions. The likelihood of fraudulent actions diminishes while precautionary attitudes are naturally stimulated. Hence, positive opportunistic behavior takes the lead, fostering an overall welfare increase.

Furthermore, this methodological change strongly prevents people from circumventing the law.

Notice that, in the case of the penalty-based system presented in our example, the causer of a car insurance accident can easily avoid the penalty contractually imposed by choosing a different insurance company in the following year. Moreover, the four companies, acting competitively in the market, consider any new premium acquisition as a gain and hope that the eventual accident that their new customer recorded in the past will not occur anymore. Those who are immediately and negatively affected by the event do not hold effective executive power to oppose it.

Contrariwise, under the decrease of 1% on any eventual future reimbursement, it is unlikely that any insurance company foregoes the opportunity of applying it. Those who are negatively and immediately affected by the event hold effective executive power to prevent it. Hence, the reward-based system significantly increases society's ability to control its individuals' behavior in a positive mode.

The numerical structure of the above-given example puts into perspective how much can society be losing by engaging in a mainly driven penalty-based system.

Table 2 compares the two situations while considering that 15% of total damage costs are of undetected fraudulent nature. Data is calculated as follows.

- 1) The total number of contracts is N, $N = 10,000$;
- 2) Society's total cost is given by the annual sum of paid car insurance premiums

$$\text{Society's total cost} = \sum_{i=1}^{10,000} P_i, \text{ where } P_i \text{ is the premium of contract } i.$$

3) Average claim frequency, ACF, is 5% of total contracts under a penalty-based system;

4) Car accident average cost, AC, is \$1,000;

5) Insurance companies' gross profit rate, GPR, is 10%;

6) Industry financial structure is given by

$$\sum_{i=1}^{10,000} P_i = [(N \times ACF \times AC) \times (1+GPR)]$$

7) Fraud is estimated to be 15% of total damage cost under a penalty-based system;

9) Under a reward based-system, fraud is estimated to be 20% of its value under a penalty-based system.

Table 2. Insurance industry: Penalty-based system versus Reward-based system

	Penalty-based system	Reward-based system
Total number of contracts	10,000	10,000
Total damage cost	\$500,000	\$440,000
Average claim frequency	5.00%	4.40%
Average cost	\$1,000	\$1,000
Insurance companies' profit margin	\$50,000	\$44,000
Society's total cost	\$550,000	\$484,000
Fraud	\$75,000	\$15,000
Average premium per contract	\$55.00	\$48.40

Source: Author's own creation

Regardless of the limitations imposed by the assumptions made during the construction of Table 2, its analysis provides a few points worth noticing. First, when changing from the penalty-based system to a reward-based system, fraud is reduced by \$60,000 while the society's gain reaches \$66,000; i.e, positive opportunistic behavior is an overall welfare lever. This effect occurs because the same reward level requires a smaller cost to be secured. Second, the effectiveness of the reward-based system can only be reached when the reward is enacted in the first place. Note that the insurance contract begins with the assumption that the full amount of collected premiums is used to pay for the total expected car damage during one year plus the insurance companies' administrative costs. Hence, the reward is enacted in the first place. Third, even the society's members who do not own a car, nor are indirectly involved with it, end up benefiting from the adoption of a reward-based system. Although a person might not be a car owner, the individual still enjoys several benefits such as an easy process of

reimbursement in the event of suffering any car-inflicted damage, the car owner's increased carefulness when driving, and the higher purchasing power enjoyed by the car owner to acquire other goods and services. Fourth, and finally, fraud reduction is mainly resting on individual choice, rather than on the control exerted by the society's authorities.

A reward-based system always surmounts a penalty-based system. Yet, it requires a superior organizational level across the entire society.

The market for goods and services

Prior explanation extols the role of both executive power and the regulatory framework to channel human behavior. In the economics realm, the analysis needs to focus on the rules that foster positive opportunistic behavior to improve overall welfare. Keeping the payoff structure mentioned above, considering utility as a function of both consumption and leisure, and defining welfare as the utility level reached by a society's member, it can be stated that economics aims at identifying the rules that propel the highest utility levels to the entire society. Hence, how executive power is exercised and what kind of opportunistic behavior is stimulated are in the spotlight of virtuous economics.

It is, therefore, crucial to identify a number of possible situations conditioning economic development. Looking at the market for goods and services, we lay our focus on society's ability to increase production while fostering a relationship of mutualism – i.e., every society member improves his or her welfare due to the settled relationship, and the individual is utterly aware of it. This procedure allows us to continuously seek the circumstances that enable positive opportunistic behavior.

In medieval times, there was only one person holding executive power while the remaining society was engaged in the production of goods and services which were afterward distributed according to their master's will. This scenario has changed and it is relevant to conclude if it was for the better concerning overall welfare.

It is, thus, required to start from a situation allowing to identify human stimuli toward the production of goods and services. We begin with the Besley and Gahtak (2010) framework.²³ We consider a single producer in the economy, in which there is no form of exchange. The authors mention that we may consider the example of a *“farmer who is endowed with a quantity of land”* (Besley & Ghatak, 2010, p. 4529). The authors use this

²³ I have first presented the following argument in the book “Full Employment in Our Global Village,” Rodrigues, J. C. (2019). Due to the character of the exposition, in what concerns the analytical steps, and to prevent the loss of accuracy, I, herein, almost entirely recover the explanation given there. See also Besley, T., & Ghatak, M. (2010) “Property rights and economic development” in Dani Rodrik and Mark Rosenzweig (Ed.) Handbook of Development Economics.

model to analyze the role of property rights in limiting expropriation. I will extend the analysis to verify the role of the employer taking a parcel of the total output generated by the employee's work effort. The procedure makes sense because the economy's final outcome depends on the performance of both employers and employees.

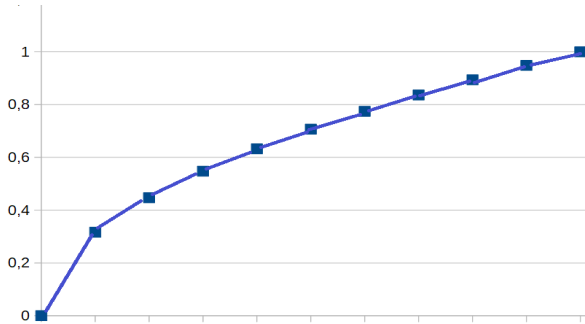
Consider a very simple model where the farmer commits effort (time), where effort $e \in [0, 1]$, of which the farmer has an endowment of total possible working time of \bar{e} , where $\bar{e} \leq 1$, and yielding an output A . The resulting output A has a probability of occurrence of $e^{1/2}$ and may be zero with a probability of $1 - e^{1/2}$. Therefore, under this simple model, the expected output is:

$$Q_e = Ae^{1/2} \quad (6)$$

The production function assumes that there is an effect of exhaustion along with the increase in work efforts – i.e. decreasing returns to scale as shown in Figure 6.

In this framework, the farmer's expected consumption is given by Q_e and his or her leisure time is given by $\bar{e} - e$.

Figure 6. Work efforts decreasing returns to scale, $f(x) = x^{1/2}$, $x \in [0,1]$



Source: Author's own creation

The economic agent is assumed to be maximizing his utility function, U , which is linear in consumption, c , and leisure, l . Thus, we assume the farmer is subject to the condition $e \leq \bar{e}$ and wants to maximize his or her utility by setting work efforts e .

Therefore, the entrepreneur's problem is as follows:

$$\max U(c, l) = c + l = Ae^{1/2} + \bar{e} - e \quad (7)$$

Moreover, to simplify the analysis and without loss of generality, it is assumed that there are neither income effects nor risk aversion considerations.

Besley and Ghatak (2010) consider a given probability of expropriation τ which always represents a failure of the farmer to fully enjoy the fruits of his or her work efforts.

Thus, in this instance, τ represents insecure property rights which may take the form of a tax or stealing, but always means the loss of a portion of the entrepreneur's production. Under given expected taxation (or expropriation) in the economy, represented by τ , since part of the producer's output is not going to be available for his or her consumption, the entrepreneur's problem is now represented as follows:

$$\begin{aligned} \max U(c, l) = c + l &= (1 - \tau) A e^{1/2} + \bar{e} - e \\ \text{subject to } (\bar{e} - e) &\geq 0 \end{aligned} \quad (8)$$

Solving the maximization problem²⁴ while considering the constraint $e \leq \bar{e}$, we obtain the optimal choice of the entrepreneur's work efforts:

$$e^* = [(1 - \tau) A / 2]^2 \quad (9)$$

Since, according to the model, total output, Q_e , in equation (6), is strictly dependent upon the entrepreneur's work efforts, e , then it is easily seen by equation (9) that the highest the expected value of τ the lowest the stimulus of the farmer to work the land. In simple common words, it is understandable that people will reduce their propensity to work hard if they are expecting that a significant portion of their productive efforts is not going to be enjoyed by them. Hence, in this instance, the entrepreneur maximizes his or her utility by preferably engaging in leisure activities.

The model outlines how the use of property rights channels human behavior to secure optimal productive efforts. These can only be reached when a sense of security towards the outcome of productive efforts is felt by the economic agents. Note that if the weight of stealing or taxation is too high, the producer is stimulated to both avoid productive efforts and engage himself in the activities of negative economic nature. The way property rights are secured and enforced surely deserves the continuous attention of both micro and macroeconomics theory.

Nonetheless, the scope of property rights to secure optimal productive efforts extends far beyond the entrepreneurs' welfare. We still need to inquire if the economy has the best possible institutional environment to foster overall welfare. Hence, it is relevant to analyze how expropriation concerns affect every productive unit of the economy. Particularly, it is worth identifying when it is optimal for a citizen to choose between embracing entrepreneurship or working for an employer.

The problem of the individual who has the capital to start a business but considers finding a job instead may be conceptualized following the same reasoning. We begin considering a laborer who can choose between several employers and will be yielding a

²⁴ See, for instance, Chiang, A. C., & Wainwright, K. (1984) "*Fundamental methods of mathematical economics*."

portion of his total production. After finding his job, he or she commits effort (time), where effort $e \in [0,1]$, of which the laborer has an endowment of working time of \bar{e} , where $\bar{e} \leq 1$, and yielding an output B . Analogously, the resulting output B has a probability of occurrence of $e^{1/2}$ and may be zero with a probability of $1 - e^{1/2}$. Therefore, the expected output produced by the employee is:

$$Q_w = Be^{1/2} \quad (10)$$

The employee is also assumed to be free from income effects or risk considerations.

The employee is assumed to be maximizing his or her utility function, U' , which is also linear in consumption, c , and leisure, l . Thus, we assume the employee is subject to the condition $e \leq \bar{e}$ and wants to maximize his or her working efforts, e . Consequently, when the employee can grab all his production, the employee's problem is as follows:

$$\max U'(c, l) = c + l = Be^{1/2} + \bar{e} - e \quad (11)$$

However, it is expectable that any employer considering hiring a new employee is aiming at a portion of the employee's production, β , otherwise, the employer would not bother to assume such a responsibility. In common words, it will always be expectable that an employer only is prone to hire a new employee if he or she can profit from using the additional work effort. Therefore, a parcel of the employee's production is expected to be taken away by the employer. Hence, the employee's problem is represented as follows:

$$\begin{aligned} \max U'(c, l) &= c + l = (1 - \beta) Be^{1/2} + \bar{e} - e \\ \text{subject to } &(\bar{e} - e) \geq 0 \end{aligned} \quad (12)$$

Solving the maximization problem while considering the constraint $e \leq \bar{e}$, we obtain the optimal choice of employee's work efforts:

$$e^* = [(1 - \beta) B / 2]^2 \quad (13)$$

An employee's optimal productive effort depends as well on the portion of his or her production that is taken away by the employer. It is, therefore, clear that under an economic regime of communal property it is difficult to reach the optimal production level given the existence of worker heterogeneity. Likewise, the medieval socioeconomic structure was hardly reaching the best practices for improving overall welfare. At those times, people could not choose between engaging in entrepreneurship or working for someone else while the owner of their lands was arbitrarily taking the production away from them. And, it is fair to state that neither of them, servant or landlord, had several other options.

To evaluate if an individual chooses to be either an employer or an employee we need to compare the resulting optimal choice of the individual when acting as an

entrepreneur, e^* , with the resulting optimal choice of the individual when acting as an employee, e^* . Hence, under the model assumptions, the individual will be indifferent between each of the options when $e^* = e^*$. Consequently, the individual will be indifferent between engaging in entrepreneurship and accepting a job as a regular employee when:

$$(1 - \tau) A = (1 - \beta) B \quad (14)$$

Which is the same as:

$$\frac{A}{B} = \frac{(1 - \beta)}{(1 - \tau)} \quad (15)$$

Equation (15) provides a very interesting result. If we consider that the individual is able to produce the same output either working as an employee or as an entrepreneur then the individual opts for being an employee only if the amount of total production which is expected to be withdrawn from him by the potential employer, β , is lower than the amount of expropriation, τ , which he expects to be facing when engaging in entrepreneurship. Moreover, if the individual understands he is rather productive as an entrepreneur than as an employee, then he will be seeking an employer only if the amount of his total production withdrawn by the employer, β , is smaller enough to offset the amount of expropriation of total production, τ , which he expects to be facing when engaging in entrepreneurship (in equation (14) if $A > B$ then $\beta < \tau$ for the indifference condition to hold). In common words, for an equal total expected output, working either as an entrepreneur or as an employee, the individual prefers to seek a job instead of creating his or her own enterprise if, and only if, he or she expects the new employer to take from him or her less than the government does by taxation upon entrepreneurship.

In this instance, it is possible to set up an economy that maximizes overall welfare considering every society's member. We can model an economy with four types of people: 1) the government, who maximizes taxation, τ ; 2) the farmer, who maximizes his or her utility, U_e ; 3) the employee, who maximizes his or her utility, U_w ; and 4) the unemployed person, who lives at the expenses of both the farmer and the employee by getting an even portion of their production, γ . By labeling the farmer's work effort as e_e and the worker's work effort as e_w , we have $U_e = Q_e + \bar{e} - e_e$, $U_w = Q_w + \bar{e} - e_w$, and the welfare of both employer and employee is given by $U_t = U_e + U_w$. Employer and employee's welfare is thus

$$U_t = (1 - \tau - \gamma) [A (e_e)^{1/2} + \beta B (e_w)^{1/2}] + \bar{e} - e_e + (1 - \beta - \gamma) B (e_w)^{1/2} + \bar{e} - e_w \quad (16)$$

The society will be maximizing overall work efforts' utility, U_t :

$$\begin{aligned} \max U_t &= (1 - \tau - \gamma) [A (e_e)^{1/2} + \beta B (e_w)^{1/2}] + \bar{e} - e_e + (1 - \beta - \gamma) B (e_w)^{1/2} + \bar{e} - e_w \\ \text{subject to } &(\bar{e} - e_e) \geq 0 \\ &(\bar{e} - e_w) \geq 0 \end{aligned} \quad (17)$$

Looking at U_t , since it is always decreasing with γ , it is interesting to outline that overall work efforts' utility is always decreasing with the increase of unemployment, and maximizing overall welfare requires a full-employment economy. Further, the marginal utility of both employer and employee decreases to the right of the point of optimal work effort. Specifically, we have

$$\delta U_t / \delta e_e = (1/2) (1-\tau-\gamma) A (e_e)^{-1/2} - 1 \quad (18)$$

$$\delta U_t / \delta e_w = (1/2) [(1-\tau-\gamma)\beta + (1-\beta-\gamma)] B (e_w)^{-1/2} - 1 \quad (19)$$

and

$$\delta U_t / \delta e_e > 0 \Rightarrow e_e < [(1-\tau-\gamma)A]^2 / 4 \quad (20)$$

$$\delta U_t / \delta e_w > 0 \Rightarrow e_w < [((1-\tau-\gamma)\beta + (1-\beta-\gamma))B]^2 / 4 \quad (21)$$

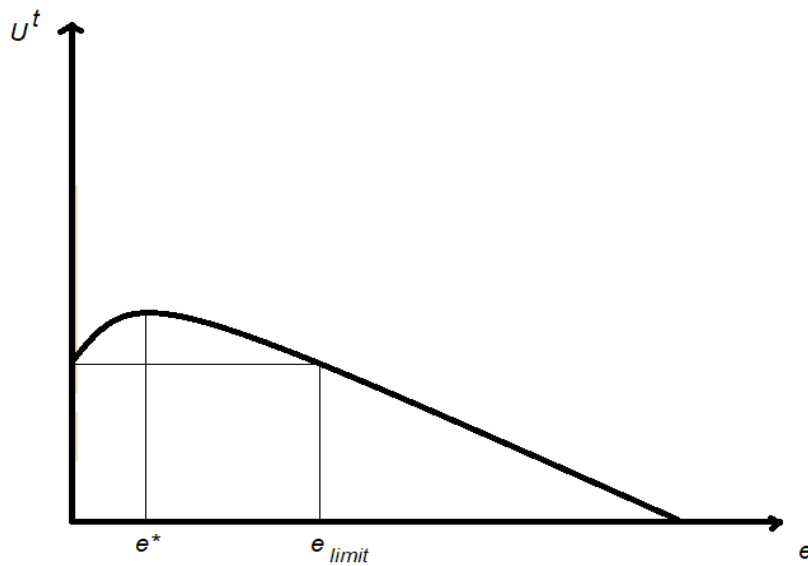
Maximizing overall work efforts' utility in an economy exhibiting unemployment, as in equation (17), leads us to find the optimal work efforts of both the farmer and the employee, e_e^* and e_w^* :

$$e_e^* = [(1-\tau-\gamma)A / 2]^2 \quad (22)$$

$$e_w^* = [(1-\tau\beta-\gamma(1+\beta))B / 2]^2 \quad (23)$$

In equations (22) and (23) it is easy to realize that the optimal work efforts, e_e^* and e_w^* , of both the farmer and his or her employee, decrease in an economy with unemployment. Figure 6 illustrates the shape of the evolution of overall welfare with productive work efforts.

Figure 7. Overall welfare and work efforts



Source: Author's own creation

In this static analysis, the four citizens cannot change their condition. The farmer is maximizing his or her utility while considering several variables: the taxation amount, τ , he or she is facing; attending his or her contribution to unemployment, γ ; considering the potential output A ; and, accounting for the parcel of the employee's work effort, β , he or she is entitled to. The employee, in turn, is maximizing his or her utility according to the following: the given conditions of wage, $(1-\beta)$; the unemployment contribution, γ ; and, the potential output B . Therefore, the result that is given by equations (22) and (23), either with or without a full-employment economy, further outlines the result of equation (15) because it is now plain that economic agents' work efforts are magnified if they all are given the opportunity of holding executive power.

Adding dynamics to this model highlights that overall work efforts' utility can be magnified under an institutional environment that simultaneously enacts a full-employment economy while giving all members of the society the opportunity of holding executive power to act as an entrepreneur or as an employee. Further, it is even more clear that the potential output A and B are important variables in the economic agent's decision-making process, leading to conclude that people's qualifications and talents are crucial for their choices aiming at maximizing payoffs. By the same token, the way the economy enables its members to transfer property among them becomes paramount.

The results that are given by equations (15) to (23) have deep economic consequences and lead to a number of important conclusions.

First of all, the result given by equation (15) shows that economic agents' committed work efforts rise with both government expropriation decreases and employers' increases in the wages paid to their employees. This result is consistent with prior research which finds a positive and significant statistical relationship between the real wage and the laborers' predicted effort.²⁵

Second, in equation (15), for the indifference condition to hold it is required that employees' total production capacity approach their capacity as entrepreneurs; otherwise, they will be prone to accept higher tax rates when acting as an entrepreneur. This is a situation leading to reduce work efforts commitment, and, accordingly, economically inefficient. Therefore, increasing individuals' professional qualification is paramount for enhancing economic efficiency.

²⁵ See, among many others, Battalio, R. C., Green, L., & Kagel, J. H. (1981) "Income-leisure tradeoffs of animal workers" and Goldsmith, A. H., Veum, J. R., & Darity, W. Jr. (2000) "Working hard for the money? Efficiency wages and worker effort."

Third, when we create the conditions for economic agents to opt between engaging in entrepreneurship or seeking a job as regular employees, greed will be the driver of economic agents' behavior. Every person will be committing work efforts according to his evaluation of the maximum output he or she can produce, given his or her utility function. This leads each person to reason in terms of his or her best efforts, rather than just considering the maximum wage he or she might get by complying with a nine-to-five regular job. Payoffs will take the lead. The individual will be reasoning in terms of his or her productive ability rather than thinking in terms of his or her expropriation ability of a parcel of employer's potential output, as it may happen currently, and constitutes negative opportunistic behavior. However, this optimal productivity result can only be reached if every person is free from risk considerations between being a regular employee or engaging in entrepreneurship.

Fourth, the combined results of equations (9), (13), (15), (22), and (23) further outline the importance of having a flexible labor market for increasing productivity; where 'flexible labor market' means the ability of employers and employees to freely set both work time and wage. Every human being is unique which means that every person has his or her unique optimal work effort leading to the highest individual productivity. Regardless of individual idiosyncrasies concerning preferences and risk, the individual rather is engaging in entrepreneurship every time an employer is offering a too small salary compared to what the individual expects to be earning as an entrepreneur.

Fifth, the institutional environment that removes risk considerations from economic agents' minds and enables every person to think in terms of his or her best productive efforts is one that enacts a full-employment economy. When it comes to labor relationships, the literature on micro and macroeconomics acknowledges the existence of contracting frictions imposed by economic agents' behavioral responses, such as adverse selection and moral hazard, and emotional choices, induced by either market incentives or intrinsic motivation.²⁶ These results show that efficient adjustments in the economic agents' effort require that employers be free to fire employees while employees need to be safe to engage in another professional occupation. Further, the contract between employer and employee needs to be freely negotiated, given the heterogeneity of the entire workforce. A full-employment economy induces positive opportunistic behavior when combined with people's freedom to act.

²⁶ In this realm, it is particularly interesting to check out Besley, T. & Ghatak, M. (2016) "Market incentives and the evolution of intrinsic motivation."

Finally, ensuring a full-employment economy cannot be a government's liability. Note that the higher the expropriation amount, τ , the lower the employer's work efforts. Cumulatively, the higher the expropriation amount, τ , the lower the wage employers have to pay to an employee to make him indifferent between choosing to accept the employer's job or establishing himself as an entrepreneur. Hence, if the expropriation amount, τ , raises, then both employer and employee reduce their work efforts. Consequently, the economy will not be supplying as many goods and services as it can. A government cannot ensure a full-employment economy unless it collects taxes for financing that expense – in equation (16) the existence of involuntary unemployment ($\gamma > 0$) always leads to a decrease in overall welfare for both the farmer and the employee. Accordingly, only the private sector can efficiently ensure a full-employment economy.

In summary, we have reached several important conclusions: 1) granting private property rights is necessary for maximizing overall welfare; 2) granting executive power to every society member is necessary for reaching the optimal productive level; 3) granting a full-employment economy is a path towards optimal productivity; and 4) full-employment needs to be secured by the economy's private sector. This surprising result outlines that, rather than taking the institutional environment as given, it is paramount to continue monitoring it to check out if either it is truly the best for ensuring overall welfare or, definitely, the institutional environment can be improved.

An exercise that the economist must do is to inquire about the possibilities associated with both positive and negative opportunistic behavior combined with a number of alternative institutional rules. We have just concluded that the use of property rights positively combines with enabling people to choose between engaging in either entrepreneurship or working for someone else. Moreover, we realize that this is both an individual and heterogenic choice whose heterogeneity needs to be considered. Hence, despite being a novel approach, understanding how heterogeneous citizens detect market opportunities becomes paramount.

Payoffs are the main market indicators enabling the identification of opportunities. Herein, the foremost economic payoff that we are considering is welfare, measured in terms of utility. But we are considering $U_i(c, l)$, i.e., the utility level of the individual i is dependent on both consumption and leisure according to his or her own specific utility function. Hence, overall welfare, rather than being considered as the $\sum c_i$, like GDP measures tend to do, is herein conceptualized more like the $\int U(e) de$, embracing the utilities of the entire population. Accordingly, both profit and wages constitute important sources

of the individuals' opportunity identification for they immediately impact U_i and set up the choices for either e^* , in equation (8), and e^* , in equation (13). It is thus relevant to understand how the relationships between profits, wages, and executive power (being able to choose between entrepreneurship or working for someone else) condition overall welfare.

It is possible to identify other variables that either directly or indirectly impact the individuals' utility and overall welfare, such as communal infrastructures (for instance, a bridge is usually a communal infrastructure improving overall welfare). Yet, those are often macroeconomic measures rather than grassroots institutional rules. Herein, we are embracing the crucial role of normative economics in defining positive economics. As we have already seen, human behavior is what it is because of the institutional rules that the population chooses to abide by. Hence, we proceed with the analysis of profit's foundations to condition the humans' opportunity detection process.

Profit's contribution to virtuous economics

Profit is the value produced by the difference between the selling price and total production costs. Total production costs encompass several items, namely: the cost of all raw materials, subcontracts, and all other current costs; the cost of research and development departments (R&D); the financial cost (interest or any other form of capital remuneration); the wage of all employees; and the wage of the entrepreneur. Hence, profit is a portion of the selling price that needs to be considered as either, part of the financial costs (when stockholders are entitled to it), or part of the entrepreneur's wage (when it is going to the hands of the entrepreneur). Either way, it is plain that profit is a mere accountant record that could perfectly be ignored if imputed to the entrepreneur's wage, to the financial cost of the economic operation, or to the distribution between both of them.

Figure 8 illustrates that profits can be easily spread out between the entrepreneur's wage and/or the cost of capital without any other accountant impact. Indeed, this is not a question of choice because profit is already distributed among these two economic actors.

Profit is, therefore, a payoff. Accordingly, profit exerts a very powerful stimulus for people to engage in either entrepreneurship or financial operations. If a given economic activity is proving to be a profitable activity then it is attracting the attention of both entrepreneurs and financial investors, just as long as these persons have executive power for the endeavor. Profit has the role of signaling the economic activities that society values

the most. However, it is worth mentioning that the same function can be performed by either interest paid in financial operations or the entrepreneur's wage.

This profit redundancy is easily perceived by looking at the traditional supply-demand market chart.

Figure 8. What profit is all about

Revenue	Costs	Revenue	Costs	Revenue	Costs
	Profit		Employees' wages		Employees' wages
	Employees' wages		Entrepreneur's wage		Entrepreneur's wage
	Entrepreneur's wage		Financial costs		Financial costs
	Financial costs		Operating Costs		Operating Costs
	Operating Costs				

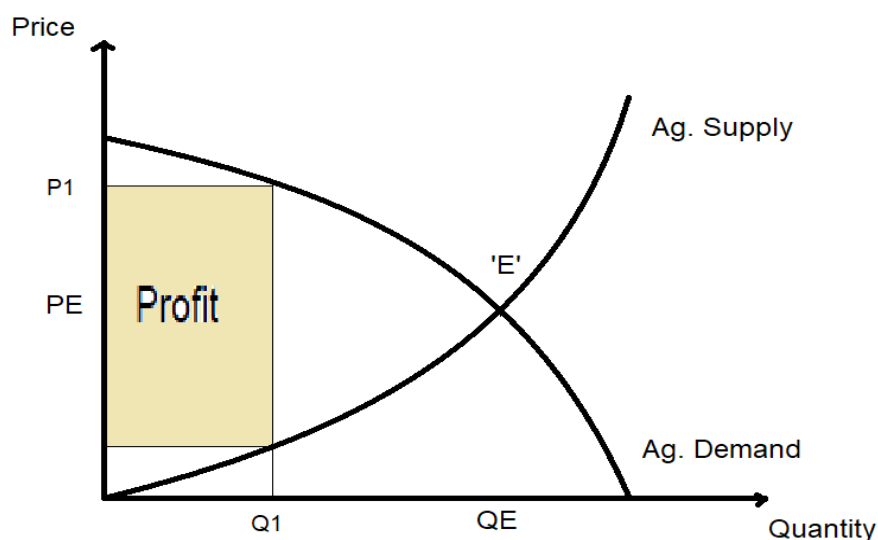
Source: Author's own creation

Figure 9 puts together both the aggregate supply and aggregate demand curves following the usual assumptions. The aggregate demand curve represents the highest price that buyers are willing to accept to get a certain quantity of the good. The aggregate supply curve represents the lowest selling price that sellers need to ask to cover their production costs. Hence, the aggregate supply curve represents the “quantity-price” combinations where the firm’s profit is zero. The aggregate supply curve can be seen as the indicator of profit-zero. When the economy is producing quantity ‘Q1’ and selling it at the price ‘P1’, a huge profit is signaling an opportunity and it is calling for entrepreneurs to enter the market while capturing the attention of many financial investors. Accordingly, in a free market that provides equal executive power to every society member, new firms are created to increase the economy’s productive capacity, and the economy approaches its highest efficiency at the equilibrium point (QE, PE).

Despite often counter-intuitive, it is crucial to outline that an economy cannot pursue either economic development or overall welfare unless it is doing its best to reduce the profit records in the economy. Inquiring about economic efficiency is an economist's role. It starts in seeking each human behavior stimuli to choose a specific course of action.

When a business endeavor is deployed, the entrepreneur settles his or her wage while the cost of capital is considered according to the best available alternatives to invest the money. At a price that secures the zero-profit level, both entrepreneurs and financial investors are fully satisfied. Conversely, if the business is able to secure a profit, then it means that aggregate demand is paying a higher price than the economy actually requires. Aggregate demand is paying more than it is enough to cover production costs while aggregate supply is producing less than the economy needs to improve overall welfare. The presence of profit always signals an excess of aggregate demand over aggregate supply. Hence, rather than a measure of productivity, profit is a measure of inefficiency.

Figure 9. Aggregate supply-demand market chart



Source: Author's own creation

It is clear that an economy driven by profit maximization ideas cannot be following efficiency criteria. Yet, our global institutional environment mistakenly sustains a profit-driven economy. It is, therefore, crucial to check out the functioning of both the labor market and the money market to be able to conclude if it is feasible to keep together the enforcement of property rights and a full-employment economy grounded by the economy's private sector.

Back to the pirates' riddle

Before further analyzing how opportunistic behavior changes under a full-employment economy while impacting the labor market, it is worth looking at the possible future development of the five pirates' welfare. This glance provides a clue on how opportunistic behavior might evolve under absolutely selfish motivations.

We are aware that pirate 'A' was holding executive power and, accordingly to the current institutional rules of the island, he or she has decided to divide the 100 gold coins in a way that maximizes his or her own immediate gain; i.e., $\{A=98, B=0, C=1, D=0, E=1\}$. But life goes on, and the institutional rules society abides by are still holding. Therefore, pirate 'B' is now the next oldest pirate and he or she is the one entitled to be holding executive power if pirate 'A' gets killed. Hence, pirate 'B' might entice pirates 'C', 'D,' and 'E' to engage in new plunder against pirate 'A', aiming at killing him or her and getting the 98 gold coins. Recalling that all pirates are highly logical and bloodthirsty, we know that pirate 'A' is surely aware of this danger. However, the gold coins' exclusive utility is to be used to buy bottles of rum. And there is no one producing them on the pirates' island...

Let us consider that the five pirates decided to split the island between themselves according to the coin distribution. Moreover, consider that pirate 'A' decides to start producing some rum while being aware that pirates 'B' to 'E' are in the neighborhood. Now, pirate 'A' is facing a similar problem as the one posed by equation (8) – i.e., the problem of expropriation of a portion of his or her production becomes effective. Pirate 'A' is quite aware that the remaining pirates cannot produce rum as he or she can, and the probability of being robbed is high. Hence, pirate 'A' must consider a number of variables: the expropriation probability, τ ; his or her own work efforts, e_e ; the productive capacity of the land, A ; the possibility of hiring some of the pirates available to either provide security, as guard workers (which means acquiring control over the amount of τ) or improve production using some of the other pirates as regular employees – which means to seriously consider the value of the work of other pirates, i.e. $\sum \beta B(e_w)^{1/2}$, to improve his or her own welfare. Pirate 'A' is now aware that he or she can definitely improve his or her well-being by sharing work efforts with the remaining community because

$$U_e = (1-\tau)[A(e_e)^{1/2} + \sum \beta B(e_w)^{1/2}] > U_e = (1-\tau)A(e_e)^{1/2} \text{ and}$$

$$U_e = (1-\tau)[A(e_e)^{1/2} + \sum \beta B(e_w)^{1/2}] > U_e = (1-\tau-\gamma)[A(e_e)^{1/2} + \sum \beta B(e_w)^{1/2}], \text{ where } e_w$$

stands for the work efforts of every pirate working for pirate 'A'. Pirate "A" is well aware

that his or her well-being increases if every other pirate is employed while providing a portion of their work efforts to him or her.

Yet, given that the oldest pirate is still the one who decides how loot is split, pirate 'B' is analyzing the possibility of killing pirate 'A' and becoming the master of the pirates' island. So, rather than accepting the pirate's 'A' job proposal, pirate 'B' is analyzing the possibility of becoming the island owner. Pirate 'B' is now facing a problem similar to the one posed by equation (14). Yet, given that this pirate is a highly logical person, then he or she is well aware that the problem is exactly to figure out the situation where he or she ends up better off while considering exploiting other pirates' work efforts. The indifference point for pirate 'B' is actually given by

$$(1 - \beta)B = (1 - \tau)[A(e_e)^{1/2} + \sum \beta B(e_w)^{1/2}] \quad (24)$$

where e_w , in this case, stands for the work efforts of pirates 'C', 'D', and 'E' working for pirate 'B.' That is, pirate 'B' is concerned about comparing the welfare got when accepting work for pirate 'A' with the level of well-being reached when choosing to kill pirate 'A' and taking control of the island. This explains why humans engage in war endeavors while hoping to end it and become enjoying endless bottles of rum...

These highly logical pirates do not consider any more to take control of the island without ensuring a full-employment economy that grants them both the highest production of rum that is possible to get while allowing them to enjoy leisure time in peace.

Clearly, a pirate's 'B' option depends on his or her perception of the value of every living person's work effort. The likelihood of choosing to kill pirate 'A' increases with the increase of the value of the future work efforts of his or her employees. However, the decrease in the number of available workers further diminishes the welfare of the pirate holding the executive power on the island.

Economics is aware that it is through enhancing work productivity that overall welfare can be boosted. Economics is also aware that money can be used to provide executive power to enable someone to take advantage of a perceived opportunity and become an entrepreneur. Virtuous economics needs to identify the institutional environment that fosters overall welfare while being aware that pirates' highly logical thoughts are rare in the real world. Human reactions are usually driven by either fear or greed. These emotional choices define psychological limitations and cart "bounded rationality."²⁷ Virtuous economics aims at steering human behavior into a positive mode,

²⁷ See Lo, A. W. (2011) "Fear, greed, and financial crises: A cognitive neurosciences perspective;" Damásio, A. (1999) "The feeling of what happens" and Simon, H. A. (1955) "A behavior model of rational choice."

preventing emotional disturbance. To check this out, we need to look at what happens in the labor market if a full-employment institutional environment is enacted while understanding how human opportunistic behavior is channeled in this instance.

The labor market

One of the main problems the labor market struggles with is the social loafing issue. Social loafing can be perceived as a form of negative opportunistic behavior because it happens when people reduce their performance when acting as part of a group.²⁸ Hence, it is a behavior that fits the negative opportunistic behavior definition because if everybody happens to act this way then overall welfare gets compromised.

A full-employment economy requires some kind of organization to deal with workgroup environments. The literature identifies several different frameworks where different levels of social loafing are exhibited. The outcomes are explained by diverse perspectives such as cultural differences, ability to link the output with the individual, level of shared responsibility, or the existence of group goals. These are all dimensions requiring the firm managers' attention. However, these decision-makers are severely constrained by the institutional environment they have to deal with.

The labor market faces a permanent challenge for balance, regardless of the level and nature of opportunism that it naturally spurs. On one hand, workers are both heterogeneous and whim subjects. This situation defies managers' work planning and contract compliance. On the other hand, events related to the regular demand faced by firms lead to regular oscillations of firms' productive needs. Besides the recognized existence of seasonality, fashion effects, satiation, and consumer preferences, the literature also shows that aggregate consumption is not regular and changes according to the level of uncertainty faced by the economic agents.²⁹ Therefore, economic efficiency requires that economic agents adjust their productive units to society's needs.

For this sort of adjustment to automatically occur it is, of course, mandatory that each economic agent is looking for maximizing his or her own welfare. If employers can adjust their productive units according to the demand faced by their products, then employers need to be able to fire employees and/or reduce their laborers' working hours

²⁸ See, among many others, Earley (1989) "Social loafing and collectivism: a comparison of the United States and the People's Republic of China", and Gabrenya, Latané & Wang (1983) "Social loafing in cross-cultural perspective: Chinese on Taiwan."

²⁹ In this realm, it is particularly insightful the reading of Carrol, Hall & Zeldes (1992) who have shown that consumers exhibit a buffer-stock behavior due to future income uncertainty and preference for present consumption over future one.

and wages. By the same token, employees need to be able to find new employers wherever a better one is available, and/or need to have the possibility of becoming an employer themselves. Yet, enacting an institutional environment that enables such human behaviors raises fears regarding the immediate payoffs of both employers and employees.

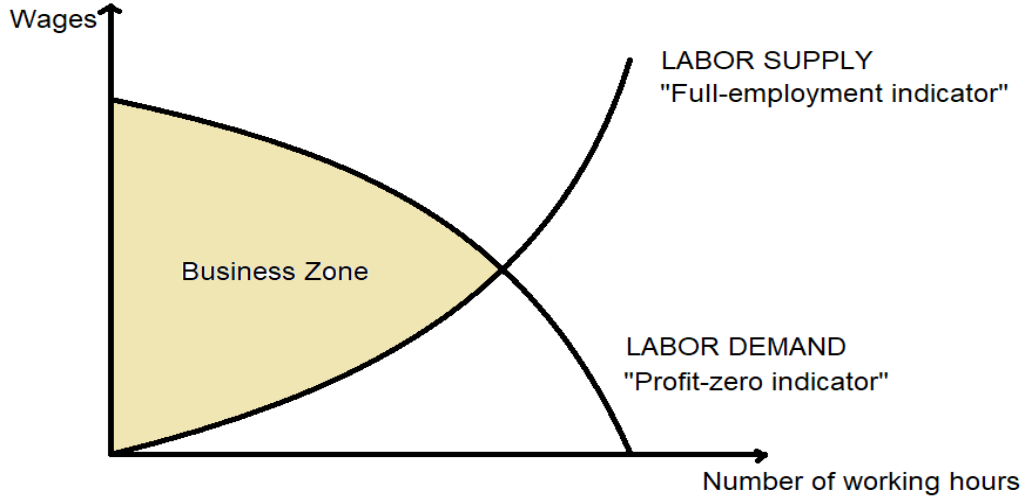
The problems faced by the five pirates enable us to realize that the perceived payoff presented by an opportunity is setting up the choice of a logical human being if he or she holds executive power to make it happen. It is, therefore, crucial to inquire how a full-employment economy generally impacts the economic agents' different payoffs and particularly affects the labor market. This approach provides a higher understanding of the importance of this specific institutional environment to condition human choices.

Figure 10 illustrates both aggregate supply and aggregate demand curves in the labor market. The labor demand is negatively sloping because firms want to hire fewer employees when the hourly wage increases. By the same token, the labor supply is slopping upward because laborers are willing to work more hours when the hourly wage increases. Labor demand represents exactly the highest possible hourly wage that a firm is willing to pay to hire a given number of working hours. Therefore, the labor demand curve in this market represents the “wage-number of working hours” combination where firms' profit is zero. Conversely, the labor supply curve indicates the “wage-number of working hours” combination at which laborers do not wish to work more. In this “wage-number of working hours” combination, involuntary unemployment does not exist. Hence, the labor supply curve represents the level of full employment in the economy. In parallel with the market for goods and services, the labor market reaches its equilibrium when the economy extols a reality of both profit-zero and full-employment.

The “business zone” identifies those situations where involuntary unemployment exists. Any point inside the business zone is economically inefficient because it is possible to either increase the number of working hours at the same hourly wage or increase the wage paid by firms for the same amount of working hours. When the economy is inside the business zone, firms exhibit accounting records of profit. If the wage is set above the optimal wage then we have a situation typified by equation (14), where $(1 - \tau)A < (1 - \beta)B$. In this instance, the individual prefers to be an employee working for someone else, rather than engaging in entrepreneurship. Conversely, if the wage is set below the optimal wage then $(1 - \tau)A > (1 - \beta)B$, and the society members prefer to engage in entrepreneurship detrimentally to working for someone else. Nonetheless, the former cannot last longer for

the simultaneous existence of both low profits and unemployment pushes entrepreneurs to easily press wages down.

Figure 10. The labor market



Source: Author's own creation

It is, thus, relevant to understand how the latter scenario relates the institutional environment to overall productivity. Plainly, if wages are set below the optimal level and the economy secures a full-employment reality, then firms' profitable records are magnified. However, the employees' work efforts fell short of the optimal level, $e_w < e_w^*$, the produced quantities are lower than was desirable, and overall welfare might be compromised for both employers and employees. Regarding the employees, it is easy to spot a welfare decrease, for $[(1-\beta)B(e_w)^{1/2} + \bar{e} - e_w] < [(1-\beta^*)B(e_w^*)^{1/2} + \bar{e} - e_w]$ and $\beta > \beta^*$. Plus, we have $e_w < e_w^*$, the wages are given by $(1-\beta)$, which is lower than $(1-\beta^*)$ and the number of working hours (or work effort) is also lower than the optimal level. But we cannot conclude about what is happening to the employers' welfare, for the positive increase in β might not be overcome by the decrease in e_w . In addition, each employer's welfare depends on the number of available employees.

To highlight this matter, the following exposition considers that the employer has only one employee working for him or her.

It is interesting to notice that a possibility is that $[(1-\tau)[A(e_e)^{1/2} + \beta B(e_w)^{1/2}] + \bar{e} - e_e] < [(1-\tau)[A(e_e)^{1/2} + \beta^* B(e_w^*)^{1/2}] + \bar{e} - e_e]$, i.e. employers welfare can even decrease. When the

wage is set below the optimal level, this implies that $\beta B(e_w)^{1/2} < \beta^* B(e_w^*)^{1/2}$; that is the same as $e_w < (\beta^*/\beta)^2 e_w^*$, which is always true if employees are optimizing their own welfare (because $e_w < e_w^*$ and $\beta^* < \beta$).³⁰ Notwithstanding, it is not difficult to build an institutional environment where employees are forced to produce work efforts above their optimal choice, i.e. where $e_w > e_w^*$. Thus, if the entire members of the economy have executive power to optimize their own well-being, we can conclude that the lowest wages always compromise the economy's productivity and diminish the overall welfare of both employers and employees. Hence, albeit at the expense of overall welfare and despite having lots of employees wishing to become entrepreneurs, we can conclude that, under a static analysis, it is possible to have a full-employment economy with firms exhibiting profits in their account statements. Yet, overall productivity will always be compromised.

Despite compromising productivity, entrepreneurs might be tempted to foster an institutional environment where wages are kept below the optimal level, regardless of the existence of a full-employment economy – i.e. entrepreneurs are tempted to play the economic game. Notice that, in this instance, although it is not possible to maximize overall welfare, we can identify an opportunity for employers to increase their particular welfare if they find a way of raising β (which is the same as lowering wages even further) while forcing employees to work more than e_w^* .

Figure 7 illustrates that every person wishes to increase his or her work efforts when $e \in [0, e^*]$. By the same token, every person wishes to decrease his or her work efforts when $e > e^*$. Finally, it is worth outstanding that there is a limit to the right of e^* where every person decreases his or her own welfare below the level of $e = 0$. Let this level be e_{limit} . At this extreme work effort level, the economy's productivity is severely compromised. When employees' work effort is enacted to $e \in [e^*, e_{limit}]$ it is possible to set a $\beta > \beta^*$ while having $\beta B(e_w)^{1/2} > \beta^* B(e_w^*)^{1/2}$. In this instance and in the static analysis, it is possible to increase employers' well-being at the expense of a decrease in the employees' welfare.

Accordingly, the labor institutional environment tends to express the tug-of-war between employers and employees, where both parties, simultaneously, pull the ropes of β (wages) and e_w (work effort) to what they believe is the best for their individual, and immediate, interest. And they both lose since overall welfare is not being optimized.

This situation compromises the economy's productivity level and brings us into the economic game illustrated in Figure 4. In a finite time, and despite the short-term eventual

³⁰ Looking at Figure 7, we realize that it is possible to have $e_w > e_w^*$ by forcing employees to work more time than optimal levels. Yet, that cannot contribute to improving overall welfare.

success of either employers or employees, the final result is that regardless of who becomes the short-term winner, their individual welfare always ends up being sacrificed in the long run. They all are losers. Mankind is losing.

Under an institutional environment that allows for involuntary unemployment, employers are spurred to pay wages far below the optimal levels. Moreover, the lowest possible wage is reached by entrepreneurs when the economy approaches the “wage-number of working hours” combination of full-employment. In this instance, employees are naturally claiming wage increases and producing work efforts below their own optimal levels. Recalling equation (14), we can, therefore, conclude that the consistency of this situation depends on the employees’ lack of executive power to become entrepreneurs themselves.

Under a static analysis, we conclude that the existence of involuntary unemployment is not a requisite for the existence of firms’ profit because it is possible to observe a simultaneous combination of wages below the optimal level and full employment. Yet, the labor market remains unbalanced due to the rules set by the institutional environment.

Adding dynamics to the situation changes the final balance of the labor market. Figure 10 increases the economist’s understanding of this subject. Starting from a situation where wages are paid below optimal levels and unemployment is a reality, if a full-employment economy is enacted then the economy will almost instantaneously adjust to the “wage-number of working hours” combination that rests on the labor market’s aggregate-supply curve. Employers’ opportunistic behavior is directed towards either keeping or improving their profit levels. Each employer hiring a new employee is going to pay a lower wage than what happens currently. This means a further decrease in the wages paid. The number of working hours remains the same but has to be distributed by all available employees. The first effect is a decline in the wage paid to employees to accommodate every laborer wishing to work. Of course that those who are employed are vividly speaking against the measure of a full-employment economy for they are focused on the short-term momentum and they are watching themselves losing purchasing power. Nevertheless, the economy reaches a full-employment situation very quickly.

Afterward, every employer starts to compete for the best employees. Moreover, every employer increases their best employees’ wages just to keep them. At the same time, under a low-wage reality, many employees wish to become an entrepreneur, and every new firm just created is going to push wages higher. On the labor market demand-side, wages keep increasing until profit is zero. On the labor market supply-side, the increase in wages

happens along with an increase in the number of working hours supplied by the workforce. This move continues until the economy reaches the labor market equilibrium at the efficient “wage-number of working hours” combination while exhibiting both full-employment and profit-zero situations. When dynamics enter the analysis, we understand that any existent profit is fully split between the wages of both employers and employees, with a gain in overall welfare. Yet, this effect is totally dependent on the employee’s ability to become an entrepreneur.

A further interesting conclusion on the effects of labor market participants’ behavior on overall welfare is provided by Besley and Ghatak’s paper on the interactions of workers’ intrinsic motivations and the structure of rewards in society.³¹ The authors find out that whether society chooses to rely on market incentives (reward structures based on performance to motivate selfish individuals) or intrinsic motivations (where individuals mostly enjoy inner satisfaction from the tasks they are performing) the levels of average productivity are similar in both economies, but the latter reaches higher levels of welfare. Thus, enabling individuals to freely engage in economic activity extends beyond the material dimension and is crucial to improving overall welfare.

Adding dynamics to the analysis allows us to identify how opportunity-driven economic agents require executive power to perform at their best; i.e., optimizing their work efforts. Moreover, this theoretical framework enables the economist to understand how competitive behavior is spurred by impatient economic agents who want to secure sudden welfare improvements. The tug-of-war between employers and employees happens under a non-optimal rationale, leading the entire society to compete, rather than cooperate – i.e., choosing to play the economic game illustrated in Figure 4.

The role of the enacted institutional environment to set up overall welfare is clear. It becomes, therefore, interesting to look at what might be the pirate ‘B’'s proposal to pirates ‘C’, ‘D,’ and ‘E’ in order to understand what bloodthirsty-selfish-highly-logical thinkers can do.

The pirate ‘B’'s proposal

Pirate ‘B’ is a highly logical person and is aware that pirates ‘C’, ‘D,’ and ‘E’ are as well. Hence, pirate ‘B’ realizes that the welfare of the four pirates can be significantly improved by killing pirate ‘A’ while ensuring the remaining pirates a full-employment economy and the ability to either be an entrepreneur or an employee according to every

³¹ See Besley, T., & Ghatak, M. (2016) “Market incentives and the evolution of intrinsic motivation.”

pirate's best judgment. This can easily be reached by splitting the island among the four of them, into four equal parcels of land. Afterward, if any parcel reveals to be more fertile than others, then each pirate can negotiate with their peers the opportunity to work together, where the pirate working on the land of another is entitled to a portion, $(1-\beta)$, of the production. This way, each pirate is holding executive power to choose between working on his or her own land or working for someone else, according to what is the highest utility he or she can get from the option. Further, each pirate realizes that they all will end up better than in the present situation where two of them survive from the charity (each has no possessions), and two of them have a very small piece of land that barely is enough to keep them alive (each has 1% of the island). Hence, pirate 'B's proposal is going to be accepted by pirates 'C', 'D', and 'E' while pirate 'A' is quite aware of the dangerous situation he or she has got himself or herself into.

If you were pirate 'A', owning 98% of the island but facing this great threat, what would you do? Would you invest in guard labor? Would you prefer to have the remaining pirates working for you? In this latter possibility, what would be an appropriate reward to maximize overall welfare? Perhaps it helps your decision-making process if you can identify ways of improving production using the coordinated work effort of several pirates at once. That is, before making a decision, it may be important for you to confirm if it is possible to reach scale economies in the production of rum. If so, what would you rather do: ensure a full-employment economy where the entire production is split according to each person's work efforts or invest in guard labor? What kind of agreement satisfies every person and allows the five pirates to live in peace? Where do you maximize your own welfare?

Clearly, pirate 'A's decision is easier if he or she can find a way of improving everyone's final production when deciding to join work efforts. In this instance, overall welfare is given by

$$U_t = (1-\tau-\gamma+\alpha) [A (e_e)^{1/2} + \sum \beta B (e_w)^{1/2}] + \bar{e} - e_e + \sum ((1-\beta-\gamma+\alpha) B (e_w)^{1/2} + \bar{e} - e_w) \quad (25)$$

where α captures the increment in productivity due to the jointed work efforts of the pirates, $\alpha > 0$.

It is now easy to see that pirates 'B' to 'E' might just accept to live in peace with pirate 'A' if they all can manage a way of removing the negative portion of the equation (25). That means to remove τ and γ – i.e., eliminating both expropriation and unemployment while ensuring that $(1+\alpha)[A (e_e)^{1/2} + \sum \beta B (e_w)^{1/2}] \leq (1-\beta+\alpha)B(e_w)^{1/2}$ to pirates 'B' to 'E' when they consider the possibilities of working to someone else or becoming an

owner themselves. Pirate 'A' is aware that peace can only be reached when β is close to zero!

These five bloodthirsty-selfish-highly-logical thinkers understand that they all can live better if they can grant a full-employment economy that provides each pirate the executive power to opt between working for someone else or becoming an entrepreneur, along with the ability to reach scale economies in production. This reality accommodates every person's most intimate desire without creating any source of stress within its dynamics.

Scale economies and specialization

If the pirates can reach a level of rum production well above their society's satiation point (sometimes called 'bliss point') then they will immediately realize that they can improve their welfare by dedicating a fraction of their work efforts to producing tobacco. At this stage, they will focus on producing both vineyards and tobacco in the most fertile areas of the island to raise each one of these goods. Afterward, they will manage a proper way of exchanging tobacco and rum among themselves to make sure that they all reach the highest possible level of individual welfare. Hence, those who are skillful in the production of each one of these goods will be rather endorsing their work efforts towards that activity. This decision follows equation (1) guidelines to produce an action. The pirates are living in an institutional environment that grants them the ability to identify opportunities and the executive power to make them happen, i.e. $O(P, \&) \neq 0$, $P > 0 \wedge \& > 0$.

Opportunities are thus sought to be taken. Concerning the demand side of this economy, because pirates are heterogeneous in their tastes regarding the quantities of rum and tobacco, they will use the money to make it easier to trade the two goods among themselves. Concerning the supply side, because pirates are heterogeneous in their ability to produce either rum or tobacco, they will use the money to trade their properties as well. Altogether, these highly logical persons understand that money can be used to reach higher standards of overall welfare, either by allowing each pirate to consume the good he or she likes the most or by raising the amount of total output that they can manage to reach. In this latter instance, using money helps to raise the value of A and B in everybody's utility equations. Money provides the required executive power that enhances the economic process among heterogeneous actors.

Yet, pirates' heterogeneity encompasses risk standards as well. As time goes by, pirates understand that the harvests are not equal every year. Hence, to raise some

protection against a bad harvest that might come in, each pirate tends to preclude himself or herself from consuming the entire period's production. Saving becomes a regular behavior in society. The relevance of this fact is that the interaction between the pirates' heterogeneous risk perceptions creates a trading room between those who do not wish to consume immediately with those who wish to consume the good right away, but not in the future. Savings becomes an immediate good. It represents the economic agents' possibility of exchanging future consumption-ability for the current one.

The relationship between savings and investment is therefore perfectly established. The positive correlation between productivity and the binomial given by scale economies and specialization is widely known.³² However, the non-economist usually believes that investment depends on prior savings, but the truth is that savings can only occur after the production process is boosted by scale economies and specialization.

Using the synecdoche helps to increase our perception of the evolution of the economy at a broader scope. It remains plain that scale economies and specialization increase the economy's savings potential. And the latter has an often misunderstood relationship with the money market.

The money market

Economists are quite aware that the institutional environment defines the level of welfare that an economy can reach. Economists are also aware that welfare is improved through optimizing the work efforts of both employers and employees while ensuring adequate leisure time for every society member. Finally, economists are aware that money is nothing but a tool that facilitates economic transactions (which, to foster overall welfare, must be taken to the mutual benefit of the parties). Virtuous economics demands identifying the monetary system that best performs its role to improve overall welfare.

One of the most distinguished features of money is its ability to provide executive power. Virtuous economics requires a deep understanding of its effects on opportunistic behavior. Economists outline that money is used for three motives only: to make trades easier (the transaction motive); as a reserve for future payments (the precautionary motive); and to engage in riskier opportunities (the speculative motive).³³ John Maynard Keynes poses that the speculative motive can be defined as "*the object of securing profit*

³² This positive effect finds its limits when complementary tasks can better be performed by one worker than by two or more. See Görlich (2010) "Complementary tasks and the limits to the division of labour."

³³ See Keynes, J. M. (1936) "The general theory of employment, interest and money."

from knowing better than the market what the future will bring forth” (Keynes, 1936, p. 146). As we have just seen above, the pirates’ production skill of a given crop spurs them to trade their properties. In this instance, money acts as a tool that provides executive power to the person who possesses it. Therefore, the money provides a positive contribution to enhancing overall welfare by enabling the transaction of consumer goods and speculative assets.

In the mind of the average citizen, this reality entails a dangerous mixture of the role of both the monetary and the institutional frameworks. At first sight, it seems that the simple fact of holding money enables people to engage in the activities of their choice. However, this can only be true after having a unanimously accepted regulatory framework providing executive power to the person detecting an opportunity. Notice that if for mere arrogance, pirate “A” forbids pirates ‘C’ and ‘E’ from exchanging their properties while he or she is enjoying coercive power to make it so, the coin held by each of the latter two pirates is useless. The institutional environment sets the extension of the benefits that the use of money can bring to society. Virtuous economics identifies how different institutional environments empower the money market to deliver overall welfare. And we need to think about it.

The way opportunistic behavior is channeled is, thus, conditioned by the rules enacting the money market and how it is allowed to interact with both the market for goods and services and the labor market. Again, equation (1) becomes paramount. The conjunction between how people perceive opportunities and acquire executive power defines their actions.

When money is introduced into the economy to enable economic transactions it becomes crucial to identify a number of important economic actors: who creates the money; who controls the quantity of money in the economy; and, who actively holds the money to engage in economic transactions. Equation (1) highlights that human opportunistic behavior is driven by the cumulative combination of perceiving an opportunity and having the executive power to act. Money can be used to acquire a good without having to trade it for another good. Hence, simple money creation enables any person to enjoy the output of someone else’s work efforts without having to trade it for a good previously made by himself or herself. Accordingly, simple money creation that is not evenly widespread over the entire community exerts exactly the same function of either taxation, expropriation, or stealing. The institutional environment setting up the monetary system is, therefore, a very delicate part of an economy.

The literature on money theory is both vast and controversial. One source of controversy arrives from the current assignment of monetary authorities towards maintaining price stability while there is plenty of evidence that demonstrates its inconsistencies.³⁴ Yet, it is widely accepted that the monetary authorities focus on the better methodology to manipulate economic variables; i.e., economists are deliberately centering their attention on manually interfering with the overall welfare. Another root of disagreement concerns the fact that some economists treat money and credit as one single variable, while others consider the two aggregates as separate constructs – i.e., the money market and the credit market are frequently considered to be two separate monetary spaces. Moreover, regarding the credit market, it is often appropriate to further separate consumer credit from producer credit. Thus, rather than focusing on building a monetary system that automatically channels human behavior into a positive economic nature, a significant effort has been done to directly interfere in the regular functioning of the economy. It is, therefore, absolutely necessary to inquire about the motives that may justify such interference for it provides huge executive power to a very limited number of persons, which is not evenly widespread across society.

The just above-mentioned exposition is one of the most outstanding aspects of our current monetary system: its demand for manual control! If a system requires human intervention then it is subject to human error. And, in this particular case, it severely compromises overall welfare. Virtuous economics aims at identifying the rules that enable an effortless decision-making process toward positive opportunistic behavior because it is the only way to ensure overall welfare on a permanent basis. Hence, there remains no doubt that our current monetary system requires attention.

Herein we are focused on identifying the best monetary system to secure overall welfare while being aware that human opportunistic behavior can be of either positive or negative nature. Accordingly, we scrutinize the current institutional environment and analyze how a different set of rules might provide superior performance to improve mankind's well-being. We begin by identifying the main worries that justify human interference in the money market. Afterward, we will inquire about the causes of such worries to conclude if it is possible to improve our monetary system.

³⁴ See, among many others, Bertocco, G. (2002) "Is Kaldor's theory of money supply endogeneity still relevant?"; Barro, R., & Gordon, D. (1983) "Rules, discretion and reputation in a model of monetary policy;" Kydland & Prescott (1977) "Rules rather than discretion: the inconsistency of optimal plans;" Bortis, H. (2004) "Money and inflation – A new macroeconomic analysis;" Taylor, J. B. (1993) "Discretion versus policy rules in practice;" Benhabib, J., Schmitt-Grohé, S., & Uribe, M. (2001) "The perils of Taylor rules;" and Aydin, D. (2017) "The marginal propensity to consume out of credit."

If we accept Fisher's definition of money, "*we define money as what is generally acceptable in exchange for goods*" (Fisher, 1911, p. 8).³⁵ Considering the production of goods and services in a given period of time, we are aware that a portion of it goes to immediate consumption while the remaining is to be consumed later on (whether it be in a useful or wasteful way). Hence it is possible to write the total production of a given period of time as $Q_t = Q_c + Q_s$, where Q_t is the total production of a given period, Q_c is the total consumption of a given period, and Q_s is the portion of a given period's production whose consumption is lagged to the future. Consider that the economic agents receive money for the production of Q_t in order to facilitate the exchange of goods in the market. In this instance, we can write $M_t = Q_t$ where the total quantity of money equals the value of total production in the economy. Furthermore, we can extend the equation to express the economic agents' savings, i.e., the use of money as a reserve of value. Thus, $M_t = M_c + M_s$ where the total quantity of money equals the total money used to consume plus the total money saved for future consumption. Accordingly, the saved money is herein directly linked with the production of a given period of time that is going to be consumed in the future. There is a fraction of the available money that is used to exchange the possibility of immediate consumption for future consuming ability. Accordingly, 'caution' is herein treated as the present good that is exchanged for future consumption. This definition is extremely meaningful for it clarifies what money is all about. Money is everything that is generally accepted in society to perform the above-mentioned exchange of goods, including 'caution.'

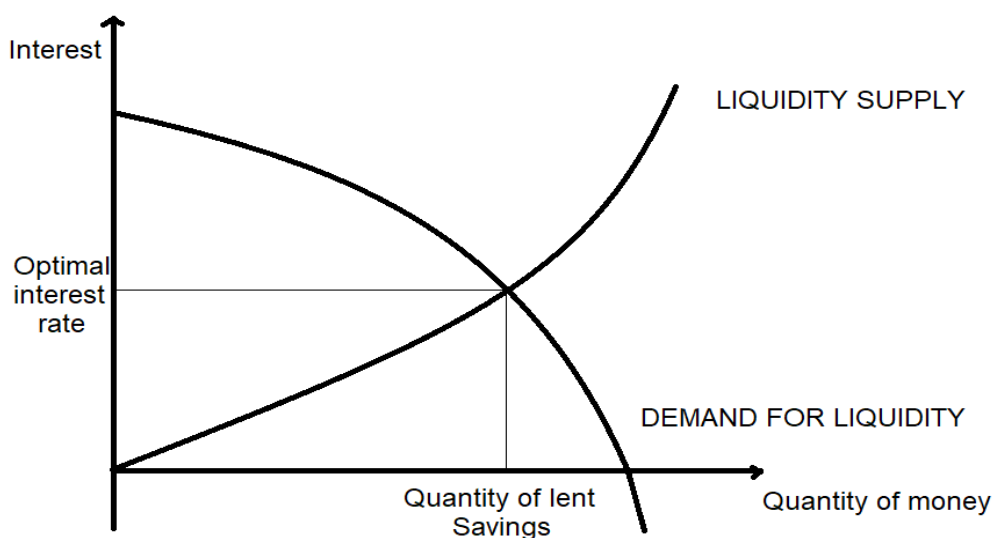
Following Kaldor's guidelines, it is absolutely important to highlight that M_s is the outcome of the regular functioning of the money market in a monetary system that uses commodity money. In this instance, as illustrated in Figure 11, the money-supply curve gives the "interest rate-quantity of money" combination that money holders are wishing to defer from present to a future time, while the money-demand curve represents the "interest rate-quantity of money" combinations that economic agents are wishing to defer from future income to immediate consumption. When there is no new money creation, the interest rate that forms in the money market is the outcome of this intertemporal agreement between the economic agents. Accordingly, the interest rate is simply the price that consumers have to pay to be able to immediately consume a portion of their future income.

This separation between the concepts of commodity money and credit money is important because it casts a significant effect on economic agents' opportunistic behavior. In

³⁵ See Fisher, I. (1911) "The purchasing power of money."

this realm, real money is considered by Bortis (2004, p. 160) as “*the vehicle carrying output.*” Conversely, when new money is created by the credit money mechanism it is called “empty” money.³⁶ The former is the outcome of the economic agents’ inter-temporal consumption preferences, while the latter is an arbitrary process fully controlled by the monetary authorities.

Figure 11. The money market



Source: Author’s own creation

When an economic system allows the two different types of money to be dealt with as one, then we can easily reach a situation illustrated by Figure 12, where the quantity of money supplied under the control of the economic authorities dictates a negative interest rate to reward savings and foster the existence of several discrete interest rates applying to loan contracts.

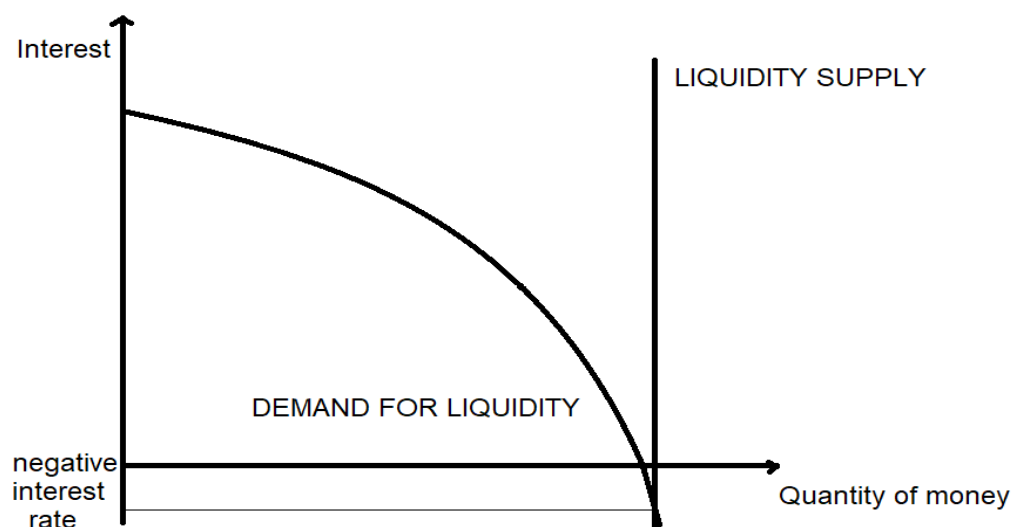
In this case, the use of money to provide the executive power that both employers and employees need to engage in new business endeavors is severely subjugated to the will of the monetary authority. The efficiency of the institutional environment that is conditioned by such a monetary system is, therefore, as optimal as the human response can be. It is no different than what happens under a centralized economy.

Of course, under this economic system, society is relying on the monetary authorities to accurately perceive what are the overall investment needs in the market for goods and services, while either providing or withdrawing money from the economy, both timely and

³⁶ See Bortis, H. (2004) “Money and inflation – A new macroeconomic analysis.”

properly. It is fair to state that this cannot be true because the decision-making process is dependent on gathering prior market information – i.e., the decision-maker action always follows a market disequilibrium already in place. Moreover, it is a process that strongly reduces the executive power from the general public, necessarily leading to a huge number of opportunity losses. Finally, the utility of money as both reserve of value and a speculative tool is severely jeopardized. Hence, virtuous economics needs to inquire if it is possible to upgrade the current economic system.

Figure 12. The money market mixed up with the credit market



Source: Author's own creation

Henceforward, we denote commodity money as being the outcome of the “money market” and credit money as being the outcome of the “credit market.” Furthermore, we will designate commodity money as “real money,” for it is backed by a tangible product already produced. By the same token, adopting a term already in use in the monetary literature, we will designate credit money as “empty money,” for it completely misses any linkage with a product already made. Note that, when all economic markets are balanced, the real money is the portion of the entire money in circulation that is directly attached to both the production and the price system. By blending the money market with the credit market, society is merging the money coming from the precautionary motive with the money created for speculative reasons. Therefore, the efficiency of this institutional environment depends on its virtuosity to foster economic agents’ positive opportunistic

behavior. Hence, the economist needs to fully identify both the merits and perils of using money under each given monetary system.

The introduction of money to facilitate economic transactions immediately gives rise to the definition of prices – i.e., the terms of exchange between any two goods. Fisher insightfully outlines that total expenditure, E , is the outcome of the total quantity of money available in the economy, M , multiplied by the number of times that money changes hands to perform an economic transaction in a given period, V . Thus $E = MV$ ³⁷ and $E = \sum p_i Q_i$, where i stands for product i , p is the product i average price, and Q is the quantity of product i that is traded. Accordingly, the author poses that E/M is the velocity of circulation of money and, therefore, if $E/M = V$ then $E = MV$ and

$$MV = \sum p_i Q_i \quad (26)$$

Equation (26) can be rewritten by denoting P as the weighted average of all p_i and T as the total number of transactions that occurred in the economy in a given period. Hence, we can write

$$MV = PT \quad (27)$$

This equation establishes both the foundations for the quantity theory of money and the unbreakable bond between the money market and the market for goods and services. Furthermore, during the twentieth century, and due to different ways of looking at the four components of the equation, either as a variable or as a parameter, this equation has consolidated itself as the source of all controversy among economists. Yet, we are looking for consensual conclusions regarding the institutionalization of a better monetary system. It is, therefore, paramount, to define what each aggregate is all about to understand why the rules we abide by were created.

By the time of the discovery of the New World, a cohort of distinguished personalities noted the increase in prices following the European import of gold and silver used in the coinage of money. Since $P = MV/T$, if the number of goods traded in the economy is kept steady, along with the velocity of circulation of money, any increase in M leads to an increase in P of T/V . Once P , M , V , and $T \in \mathbb{R}^+$, it is straightforward that an increase in M always leads to an increase in P , all else equal. During those ancient times, because gold and silver were never stopped from being imported, a source of consistent price increments was definitely established.

The consistent increase in prices became something that society had to be worried about due to its impact on overall welfare. This effect follows equation (1) guidelines.

³⁷ Irving Fisher considered a temporal horizon of one year.

First, every time gold and silver were arriving from the American continent, the new money was not evenly distributed across the entire society. Accordingly, the increase in prices that was following was surely perpetrating a decrease in the living conditions of the majority of the population. The consistency of the price increases paved an expectation of decreased living conditions in the minds of the general workers, whether they be an entrepreneur or an employee. Accordingly, laborers start to shield themselves by asking for higher wages on a consistent basis while entrepreneurs also shield themselves by anticipating a rise in the selling prices of their products, regardless of the eventual arrival of new money. Perception combines with executive power to deliver a given reaction to the opportunity at hand.

We can state that inflation refers to a continuous and widespread increase in prices in an economy, where “continuous” and “widespread” are very important remarks. Thus, all else equal, a discrete increase in the money available in the economy cannot create inflation. Notice that $P = MV/T$ and by raising M in one single moment we can only get one single adjustment of P . As posed by Friedrich Hayek (1977, p. 92) *“there is no such thing as “inflation caused by increased costs” - unless as an economic cause the political decision to increase the quantity of money in response to an increase in wages, which, otherwise, would cause unemployment.”*³⁸ Indeed, entrepreneurs settle their selling price according to what is allowed by the aggregate demand curve in the market for goods and services. Therefore, the event of having the employees claiming higher wages cannot justify any raise in the selling prices. Conversely, it simply justifies a decrease in profits. The eventual wide perception of a continuous price increment vanishes in society when it is not followed by the creation of new money.³⁹ In this small statement, Friedrich August Hayek indirectly exposes that governments tend to deal with this social turmoil by aiming at making everyone happy in the short term by increasing the quantity of money in circulation. All else equal, the consistent and general increase in prices, P , can only happen due to a continuous increase in the quantity of money, M . The author outlines that there is no inflation unless new money is consistently created in the economy.

We still need to keep exploring equation (27) to figure out if their components must be treated as variables or parameters. Besides M (the quantity of money in circulation) and P (the weighted average of all prices), equation (27) is also composed of T (the number of

³⁸ See Hayek, F. A. (1977) “Denationalization of money.”

³⁹ See Alvarez, F., Beraja, M., Gonzalez-Rozada, M., & Neumeyer, P. A. (2019) “From hyperinflation to stable prices: Argentina’s evidence on menu cost models.”

transactions in the economy) and V (the velocity of circulation of money). It is, therefore, paramount to verify if T and V can change on a continuous base, for these can constitute another source of inflation. The argument often used to refute the quantity theory of money is that both T and V are highly volatile. It is widely accepted that the velocity of circulation of money can change for several different reasons such as technological novelties (like the creation of new means of payment), firms' varied levels of investment across time, and many others. However, it is plain that these changes cannot increase indefinitely. Hence, despite the fact that the instability of both T and V can lead to unavoidable and welcome adjustments in P , the truth is that both T and V cannot increase forever. Yet, the quantity of money, M , can. Hence, unless we stop manipulating the quantity of money in circulation, M and P are our variables while T and V are our parameters.

Our current economic system enables the monetary authorities to manually interfere in the total amount of available money. Regardless of the mechanisms that central banks use to manipulate the quantity of money in circulation, economists always focus on the effects of these actions to foster overall welfare.

Equation (27) can be rewritten considering what V and T encompass. The number of transactions of the economy, T , depends on the total quantity of goods traded, Q_t , which can be expressed as $Q_t = \sum n_i q_i$, where $n_i q_i$ is the total number of transactions of product i during a given period. $MV = \sum p_i n_i q_i$, for $MV = PT$. Let N be the weighted average of all economic transactions. Then $MV = N \sum p_i q_i$. Hence, $MV = NPQ_t$. Notice that if the quantity of money is kept steady then $M = \sum p_i q_i$ and $V = N$. Accordingly, without loss of generality, equation (27) can be written as

$$M = PQ_t \tag{28}$$

Equation (28) removes from the analysis the redundancy inherent to the fact that if the number of transactions increases during a given period, then the velocity of the amount of money that changes hands increases exactly the same. However, this can only be true if M is kept steady. Equation (28), where $P = M/Q_t$, further outlines that it is possible to have an increase in P caused by a decrease in Q_t , highlighting the danger of having an economy exhibiting inflationary pressures under an economic crisis reality where produced quantities are declining. Conversely, if society is working properly toward maximizing overall welfare, as in equation (16), then every increase in Q_t leads to a decrease in P . That is, overall welfare can be improved without any need for money market manipulation through a simple and sheer productivity improvement.

Equation (28) emphasizes when economic development occurs. Note that overall welfare improvement is always a consequence of society being able to increase the quantities of products available, Q , while decreasing their weighted average price, P , and keeping the quantity of money in circulation, M , unchanged.

Equation (28) also highlights that, in an economy where the quantity of money is not manipulated, the purchasing power of money is settled by the pricing system. Hence, artificial interference in the monetary system necessarily disturbs both the market for goods and services and the labor market. It is, thus, mandatory to understand why humans' monetary system had consistently created a monetary authority to manipulate the quantity of money available in the economy.

The distribution of just created new money

It is worth noting that total expenditure, E , can be expressed as the sum of every product produced and traded in the economy. Let M be a fixed monetary amount that corresponds to the economy's total production. Hence, total expenditure equals the value of total products traded in the economy, including the production that is not consumed in the current period of time, in which consumption is deferred to the future. Thus,

$$E = P_c Q_c + P_s Q_s \quad (29)$$

where Q_c is the period total consumed quantity, P_c is the weighted average price of the consumed quantity, Q_s is the period total saved quantity, and P_s is the weighted average price of the saved quantity. The fact that savings regard the transaction of an already produced quantity is something that escapes the intuition of the non-economist.

Let Z denote the economy's total consumption and let S indicate the economy's total savings. Hence, S stands for the economy's present production that is chosen to be consumed in the future. Moreover, the economy's total consumption is necessarily composed of the families' expenditure, C , the firms' expenditure, I , and the governments expenditure which might assume either a consumption nature, an investment nature, or both, but always represents production that is going to be consumed in the present. Hence,

$$Z = C + I \quad (30)$$

and

$$E = Z + S \quad (31)$$

which is the same as

$$M = C + I + S \quad (32)$$

Equation (32) settles a tautological relationship to which the economy always obeys. Its merit rests on its simplicity in immediately identifying that a change in the quantity of money in circulation necessarily produces an immediate effect on the current monetary value of either the economy's consumption, savings, investment, or distribution between these three macroeconomic constructs. Moreover, it fully expresses the three motives why money is held: the transaction motive, the speculative motive, and the precautionary motive. Notice that the relationship S/M expresses the economy savings marginal propensity. Accordingly, the faculty of new money creation combined with the ability to define who is entitled to hold this new money, are two huge economic powers that directly affect the welfare of the individuals enjoying this splendid situation. It is, therefore, paramount to check out if these possibilities foster overall welfare.

The effect of reducing the available quantity of money

If the prices are kept steady, equation (28) evidences that a reduction in the quantity of money available, M , tautologically corresponds to a decrease in Q_t . A decrease in Q_t presses unemployment surges which propel additional unemployment. Hence, a reduction in the available quantity of money in circulation can cause an economic crisis.

The literature shows that the current and regular functioning of the monetary system leads to an economic crisis. Gorton & He (2008, p. 1181) point out that there is “*empirical evidence that bank credit cycles are an important autonomous part of business cycle dynamics.*”⁴⁰ The authors explain that banks engage in open competition for granting credit, without knowing their competitor's credit standards. However, banking is an industry where accounting statements and management information are often disclosed, providing benchmarks to each market participant. If a competitor is profitably granting higher amounts of credit, is simultaneously spurring the entire industry to follow its example. However, if a credit institution is lowering its performance while increasing the amounts of granted credit, all bells start ringing, and the entire industry reacts by reducing its pace of granting credit while keeping collecting prior operations' installments. This behavior causes a reduction in the quantity of money in circulation. The regular functioning of our current economic system autonomously triggers the economic cycle. Therefore, this monetary system requires the attention of the monetary authority to correct the natural misbehavior of the banking system.

⁴⁰ Gorton, G. B., & He, P. (2008) “Bank credit cycles.”

Due to regular human behavior, we have concluded that the money available in circulation can neither decrease nor increase without causing severe economic disturbances. However, the pernicious effects of bank credit cycles are just a small portion of the problems embraced by our current economic system. The institutional environment where the monetary system evolves extends far beyond the amount of money in circulation and reaches specific rules of doing monetary business. In this realm, another source of derangement comes specifically from negative opportunistic behavior.

This approach fully encompasses the important notion set out by equation (1). Borrowers are aware that they have more information regarding the financial health of their business than lenders do. This asymmetry of information leads some of them to ask for credit money even when they are aware that the default probability is higher. Furthermore, in an economy where unemployment prevails, entrepreneurs must do anything in their power for their business's survival and, in this instance, the default risk faced by banks is even higher than in a full-employment economy. Banks shield themselves against this weakness by asking for collateral and backing up the credit operations with an instrument for minimizing risk. Hence, those borrowers who do not have collateral to support the credit operation are either unable to be financed or forced to accept higher financial costs. Either way, opportunities are lost.

Conversely, the use of collateral by banks induces them to grant bad credit when a bargain looms out. For instance, regardless of the bank's awareness of a firm's financial difficulties, the bank might still grant credit against collateral that has a lot more market value than the granted money. When one party is at a disadvantage over another, opportunism tends to be used in the negative mode. In this example, the bank might be truly engaging in a real state operation rather than a financial one. Furthermore, when resorting to collateral is the common practice in the banking industry, firms are hardly financially supported by the banking industry when they face some market hardships. Economic efficiency is, therefore, severely compromised.

There is strong empirical evidence on the effects of using collateral on firm insolvencies. In the wake of the Great Recession, some countries, such as Germany and Austria, adopted a legal framework that reduces or abolishes some preferential creditor privileges. From 2010 to 2015, the number of insolvencies decreased in these two countries; from 31,998 business insolvencies, in 2010, to 23,123, in 2015, -27.7% in the German case; and from 6,376 business insolvencies in 2010 to 5,150 in 2015, -19.2% in the Austrian case. However, the data for France and Italy, two economies that have kept

their creditor privileges fairly standing still during the period 2010-2015 as they were before the crisis, is as follows: from 60,330 business insolvencies in 2010 to 63,081 in 2015, +4.6% in the French case; and from 10,089 insolvencies in 2010 to a protruding number of 14,727 in 2015, +46% in the Italian case.⁴¹ It is plain that the monetary system depends upon much more than a monetary authority. Despite counter-intuitive to the average citizen, and regardless of the monetary authorities' competence, the institutional environment strongly conditions overall economic performance.

The monetary system and the monetary authority

Adding someone to take care of monetary subjects in the economy, we can model an economy with five types of people: 1) the government, who depends on taxation, τ ; 2) the farmer, who maximizes his or her utility, U_e ; 3) the employee, who maximizes his or her utility, U_w ; 4) the unemployed person, who lives at the expenses of both the farmer and the employee by getting an even portion of their production, γ ; and 5) the monetary authority who survives by producing new money. As done previously, we label the farmer's work efforts as e_e and the laborer's work effort as e_w . Hence, we are considering that the government, the unemployed person, and the monetary authority want to maximize their expropriation ability of the goods produced by the farmer and his or her employee. Moreover, we consider that the society finds a way of enjoying scale economies, α , and that the portion of the economy's total production that is taken by the monetary authority is given by Φ , where $\Phi \in [0,1]$. Society has to maximize its overall welfare by deciding the number of work efforts to putting through. Thus, we consider the effect of the monetary authority on equation (25). Overall welfare is thus given by

$$U_t = (1-\tau-\gamma+\alpha-\Phi)[A(e_e)^{1/2} + \beta B(e_w)^{1/2}] + \bar{e} - e_e + (1-\beta-\gamma+\alpha-\Phi)B(e_w)^{1/2} + \bar{e} - e_w \quad (33)$$

Note that the monetary authority controls the money in circulation in the economy but does not produce any goods to be consumed. Accordingly, a portion of the goods that are produced in the economy must be consumed by this entity. Moreover, as illustrated by equation (28), if new money is created exclusively for consumption purposes, then, according to equation (28), society only gets a direct and proportional price increase. Desirably, the creation of new money can be used to finance new business endeavors which might allow for reaching scale economies. When this is a fruitful action, the economy gets $(\alpha-\Phi) > 0$, and registers an overall welfare improvement.

The society will be maximizing overall welfare, U^t :

⁴¹ See Crédito Y Caución, Country Report – Main Western European Markets 2017.

$$\begin{aligned} \max U_t &= (1-\tau-\gamma+\alpha-\Phi)[A(e_e)^{1/2} + \beta B(e_w)^{1/2}] + \bar{e} - e_e + (1-\beta-\gamma+\alpha-\Phi)B(e_w)^{1/2} + \bar{e} - e_w \quad (34) \\ \text{subject to } \bar{e} - e_e &\geq 0 \\ \bar{e} - e_w &\geq 0 \end{aligned}$$

The optimal work efforts of both the farmer and the employee are given by e_e^* and e_w^* :

$$e_e^* = [(1-\tau-\gamma+\alpha-\Phi)A / 2]^2 \quad (35)$$

$$e_w^* = [(1-\tau\beta-\gamma(1+\beta)+(\alpha-\Phi)(1+\beta))B / 2]^2 \quad (36)$$

It is worth outlining that society needs to maximize equation (33) in order to maximize overall welfare. At first sight, it may seem that we are only maximizing the utility of the workers – whether the entrepreneurs or their employees. However, we are assuming that every society member maximizes his or her own utility, which depends on both consumption, c , and leisure, l , such as $U(c, l)$. Hence, the member of the government, the unemployed person, and the monetary authority cannot consume unless employers and employees produce at their best.

Equations (35) and (36) magnify that, to maximize overall welfare, there are a number of variables in the economy that need to be close to zero, as much as possible. These are τ (taxation, expropriation, or stealing), γ (unemployment), and Φ (the portion of the production taken by the monetary authority). Furthermore, equations (35) and (36) highlight that the existence and interference of the monetary authority can be useful to improve overall welfare if, and only if, it positively contributes to economies of scale. This contribution must be in such a way that the gain provided by the increase in production offsets the cost of a monetary authority. Otherwise, there is no need to create new money at all. This result is aligned with Joseph Schumpeter's guideline which poses that only the entrepreneur needs credit.⁴²

This theoretical framework explains why the overall welfare depends so much on the institutional environment that society chooses to abide by. It highlights that we need to pursue a full-employment economy, safe from expropriation risks, and where money is wisely used to foster continuous rises in productivity. Yet, understanding why is this the goal to be reached does not tell us how it can be done. Therefore, the economist has to focus on emphasizing the rules that society must enact to succeed in this endeavor.

⁴² Schumpeter (1934, p. 106) outlines that “the essential function of credit in our sense consists in enabling the entrepreneur to withdraw the producers' goods which he needs from their previous employments, by exercising a demand for them, and thereby to force the economic system into new channels.”

The effectiveness of the chosen rules to foster overall welfare depends on how they channel opportunistic behavior into a positive mode. Economists are widely aware of a number of issues caused by asymmetric information between economic agents such as the agent-principle relationship, adverse selection, and moral hazard problems. Concerning the monetary affairs, we proceed by identifying a fan of possible rules to comply with while considering how each rule channels human behavior and solves the above-mentioned difficulties.

According to our prior explanation, it is thus appropriate to inquire about several hypotheses: 1) a monetary framework where there is no clear separation between the money market and the credit market; 2) a monetary framework where the money market and the credit market are apart; 3) a monetary framework that uses collateral; and 4) a monetary framework that does not use collateral.

We begin by inquiring whether the money market and the credit market should be blended together. When a credit operation takes place, there are a number of possible effects on the economy according to the origin and destination of the money. These possibilities are detailed in Table 1. It is, therefore, necessary to conclude on the merits of each operation to contribute to overall welfare.

We rely on equations (28) and (32) to identify the macroeconomic effects of operations 1 to 4 of Table 3. We use equations (34) to (36) to make conclusions about their effects on overall welfare. Later on, we consider the possibility of the emergence of negative opportunistic behavior and the possible reactions that might occur.

Table 3. Origin/destination relationships in a blended monetary market

Operation	Origin	Destination
1	Savings	Consumer credit
2	Savings	Producer credit
3	Credit money	Consumer credit
4	Credit money	Producer credit

Source: Author's own creation

Regarding equation (32), we denote $M' = C' + I' + S'$ as the static equilibrium exhibited by the economy before any operation. We denote $M^0 = C^0 + I^0 + S^0$ as the static equilibrium at the moment that the operation is agreed upon between the parties. We denote the static equilibrium at the end of the operation as $M^l = C^l + I^l + S^l$ – i.e., when the parties' positions in the operation are closed. A similar notation is adopted towards equation (28). Finally, we denote Δ as the amount of variation of a given variable.

Operation 1: From savings To consumer credit

This operation sets the use of real money to buy an already produced good, which is going to be consumed right away.

From equation (32) we know that we start from a situation where the available quantity of money equals total monetary uses, such as $M' = C' + I' + S'$ where a portion of the savings, S' , is going to be used to provide consumer credit and, therefore, increasing consumption, C' . Hence we get $M^0 = C^0 + I^0 + S^0$, where:

$$S^0 = S' - \Delta S;$$

$$C^0 = C' + \Delta S;$$

and, accordingly, we can detail that

$$M^0 = C' + \Delta S + I' + S' - \Delta S$$

and $M^0 = M'$.

Notice that $I' = I^0$.

From equation (28) we know that $P = M/Q_t$. Since $M^0 = M'$ there is no increase in the weighted average price of the economy by using money from savings when granting consumer credit – i.e., P remains standing still.

Later on, when the borrower refunds the lender, we get $M^I = C^I + I^I + S^I$, where:

$$S^I = S^0 + \Delta C;$$

$$C^I = C^0 - \Delta C;$$

and, therefore, we can detail that

$$M^I = C^0 - \Delta C + I^0 + S^0 + \Delta C$$

and $M^I = M^0 = M'$.

Hence, by equation (28), we, once again, know that there is no impact at all on the weighted average price of the economy, P .

It is important to outline that regardless of the economic agents being resorting or not to interest rates to perform this agreement (i.e., whether $\Delta S = \Delta C$ or $\Delta S \neq \Delta C$), the adjustments in prices are normal and happen according to the produced quantities of goods at both moments of time, 0 and I . This operation never produces inflation. Hence, regarding the worries about inflationary pressures, the market can be left alone to engage in this activity without any need for the intervention of the monetary authority.

This operation certainly provides a welfare improvement because the surplus of money from a given citizen at moment 0 is exchanged for the surplus of money of another citizen at moment I , allowing for the consumption of goods already produced and, consequently, contributing to avoiding waste. By this token, the operation fosters economic

agents' positive opportunistic behavior. Furthermore, it is worth outlining that banks' intrinsic motivation is to join those citizens who wish to save with those who seek to exchange the future for present purchasing power. Thus, the financial system exerts a very important function to enhance overall welfare.

However, negative opportunistic behavior can be triggered by the intention of the borrower of denying to refund the lender. In this instance, it is plain that if too many borrowers act this way then those who have savings stop lending, and the entire society is going to miss the opportunity of performing this exchange that contributes to increasing overall welfare. The institutional framework needs to provide measures protecting the lender to ensure that society does not engage in a destructive path. However, it simply requires the supervision of the legal system, rather than the monetary authorities.

If society engages in a truly committed joint-problem-solving effort, it can be interesting to implement a measure as simple as enacting that any property sale, whether of real estate or mobile goods (e.g., a car), requires the seller to exhibit proof of compliance with all of his or her obligations as a borrower, being this statement issued by the central monetary authorities. This rule constitutes a solid foundation to spur economic agents' positive opportunistic behavior and induces them to abhor negative opportunistic behavior because any default might compromise their future economic transactions. This rule follows the reward-based system guidelines. Rules, such as this one, demand a healthy and swift articulation between the whole institutional apparatus the society chooses to raise.

Virtuous economics embraces this sort of possibility to come out with the best solutions to improve overall welfare. Virtuous economics is a continuous challenge.

Operation 2: From savings To producer credit

This operation sets the use of real money to buy an already produced good, which is going to be invested instantly – i.e., the produced good is going to enter the production of future consumer goods.

Again, from equation (32) we know that we start from a situation where the available quantity of money equals total monetary uses, such as $M' = C' + I' + S'$ where a portion of the savings, S' , is going to be used to provide producer credit and, therefore, increasing investment, I' . Hence, we get $M^0 = C^0 + I^0 + S^0$, where:

$$S^0 = S' - \Delta S;$$

$$I^0 = I' + \Delta S;$$

and, accordingly, we can detail that

$$M^0 = C' + I' + \Delta S + S' - \Delta S$$

and $M^0 = M'$.

Notice that C' is unchanged, $C' = C^0$, and $M' = M^0$.

From equation (28) we know that $P = M/Q_t$. Once again, since $M^0 = M'$, there is no increase in the weighted average price of the economy by using money from savings when granting producer credit – i.e., P remains standing still.

Later on, when the borrower refunds the lender, we get $M^I = C^I + I^I + S^I$, where:

$$S^I = S^0 + \Delta I;$$

$$I^I = I^0 - \Delta I;$$

and, therefore, we can detail that

$$M^I = C^0 + I^0 - \Delta I + S^0 + \Delta I$$

and $M^I = M^0 = M'$.

In this instance, the savings used at moment 0 to grant producer credit is likely going to allow the entrepreneur to produce more goods at moment I . Hence, by equation (28), we now have a few considerations to inquire about because the total quantity of goods produced might change across this period of time. The impact on the weighted average price of the economy, P , needs to be analyzed.

When banks grant producer credit, there are two possible outcomes: either the entrepreneur succeeds, and his or her products are well accepted by the market, or the investment fails. The former presents a situation similar to reaching scale economies, such as having $(\alpha - \Phi) > 0$ in equation (34). Although not intuitive, the latter is always a situation where $(\alpha - \Phi) < 0$. It is, therefore, mandatory to detail why it is so.

Equation (28) shows that $P = M/Q_t$. In the first scenario, the available quantity of goods and services increases because the new products resulting from the investment are well accepted by the market. Hence, since M is standing still, P is, therefore, decreasing. This corresponds to a situation where $(\alpha - \Phi) > 0$. In this instance, overall welfare improves.

Conversely, when the investment fails, the borrower cannot refund the lender. This situation always presents a situation where $(\alpha - \Phi) < 0$ because, regardless of the possible costs imposed by the financial system to the lender, Φ , a number of goods produced in moment 0 was used in an unproductive activity during the period under analysis; therefore, $\alpha < 0$. This setting always decreases overall welfare. Furthermore, the failure of an investment deployed with savings always jeopardizes the overall credibility of the monetary system. Accordingly, an efficient monetary system monitors the use of savings to

grant producer credit and makes sure that the householder whose savings are at stake is aware of the default risk involved.

It is quite important to realize if the use of collateral to protect this operation might be of assistance. At first glance, the householder who is endorsing his or her savings to the entrepreneur might feel safer if the entrepreneur presents collateral in the operation to safeguard a possible future default. However, the householder has only two possibilities. Either the householder is interested in acquiring the collateral or the householder is not. In the first case, the operation becomes a regular real estate transaction rather than a financial operation. In the second case, using collateral to protect the operation does not preclude the householder from suffering a loss if the refund fails. Hence, using collateral in this operation does not bring efficiency to the monetary system.

In addition to the above-mentioned, it is worth addressing the effects of having collateral controlled by the banking system. In this case, the banking system might be fully protecting the householders' savings while becoming the owners of the unproductive assets resulting from the investment failure. Again, either the bank is interested in acquiring the collateral in the first place, or the bank is going to suffer a loss. However, the regular practice of allowing the monetary system to resort to collateral to grant producer credit using householders' savings, leads banks to avoid granting producer credit in the first place to a number of potential borrowers. Particularly, those entrepreneurs who have no collateral to offer become out-of-market participants. This situation spurs a decrease in the banks' performance as an intermediary between the householders' savings and the entrepreneurs' demand for liquidity. And a reduction in the regular exchange between today's savings and future purchasing power always hinders both economic development and overall welfare.

We conclude, therefore, that the efficient monetary system acts as an intermediary between the householders who wish to become indirect associates of business endeavors and the entrepreneurs, and does not use collateral in this operation.

Operation 3: From credit money To consumer credit

This operation sets the use of empty money to buy an already produced good – i.e., the produced good is acquired with money just made to perform the acquisition and is going to be consumed right away.

From equation (32) we know that we start from a situation where the available quantity of money equals total monetary uses. That is $M' = C' + I' + S'$ where the money

just created is going to be used to provide consumer credit and, therefore, increases C' .

Hence, we get $M^0 = C^0 + I^0 + S^0$, where:

$$M^0 = M' + \Delta M;$$

$$C^0 = C' + \Delta M;$$

and, accordingly, we can detail that

$$M^0 = C' + \Delta M + I' + S'$$

and $M^0 > M'$.

Notice that both I' and S' are unchanged.

From equation (28) we know that $P = M/Q_t$. Now, $M^0 > M'$. Since Q_t is standing still while M increases, there is an increase in the weighted average price of the economy as a direct outcome of using empty money when granting consumer credit. The increase in P means that the entire society bears the cost of empty money creation.

Later on, when the borrower refunds the lender, who had just produced money with no effort at all, we get $M^l = C^l + I^l + S^l$, where:

$$M^l = M^0;$$

$$C^l = C^0 - \Delta M;$$

$$S^l = S^0 + \Delta M;$$

and, therefore, we can detail that

$$M^l = C^0 - \Delta M + I^0 + S^0 + \Delta M$$

and $M^l = M^0$.

At the beginning of the operation, the empty money just created to grant consumer credit is going to allow the happy householder to increase his or her immediate consumption at the expense of the remaining society which must endure inflationary pressure. This operation decreases overall welfare and fosters negative opportunistic behavior.

Yet, another subtle and highly significant consequence looms out from this operation. When empty money is created out of nowhere to grant consumer credit, the householder still has the obligation of refunding the bank in the future. At the beginning of the operation, at moment 0 , the householder who benefits from this consumer credit operation holds a higher purchasing power and can buy the available products at a higher price. Accordingly, producers increase the selling price of their already made products. Producers increase their profits almost instantaneously. In the future, only the householder is forced to refund the bank with a portion of his or her income. This operation constitutes

a mechanism of growing inequality between the assets held by householders and producers. Growing social inequality is a direct consequence of this operation only.

It is interesting to inquire about the effects of using collateral in this operation. At the beginning of the operation, the bank simply creates new money, fosters an overall price increase, and provides the householder with the purchasing power that enables him or her to acquire an already made product. Producers immediately score a profit, albeit they are already subjected to the overall price increase in the economy. Later on, if the householder does not refund the bank, the bank will take the collateral and sell it in the market to score an easy gain at the expense of the remaining economic agents. In this instance, using collateral has two economic disadvantages. First, it induces banks to lend empty money to consumers rather than to producers, fostering an operation where $(\alpha - \Phi) < 0$. Second, it introduces a disequilibrium in the collateral market because it totally prevents its regular transaction while the consumer credit operation is on, reducing its participants, and fostering a further price increase. It is worth outlining that the assets held by the householder at moment I can always be used to answer for his or her liabilities in case of default. But this needs to be secured by the legal system, not by the monetary system. Once again, using collateral does not foster positive opportunistic behavior in the economic agents and rather carts a loss.

Operation 4: From credit money To producer credit

This operation sets the use of empty money to buy an already produced good that is part of a productive unit – i.e., the produced good is acquired with money just made to perform the acquisition and, this time, the good is going to be used to produce further consumption products.

Once again, from equation (32) we know that we start from a situation where the available quantity of money equals total monetary uses. That is $M' = C' + I' + S'$ where the money just created is going to be used to provide producer credit and, therefore, I' increases. Hence, we get $M^0 = C^0 + I^0 + S^0$, where:

$$M^0 = M' + \Delta M;$$

$$I^0 = I' + \Delta M;$$

and, accordingly, we can detail that

$$M^0 = C' + I' + \Delta M + S'$$

and $M^0 > M'$.

From equation (28) we know that $P = M/Q_t$. Now, $M^0 > M'$. Since Q_t is standing still while M increases, there is an increase in the weighted average price of the economy as a direct outcome of using empty money in a credit operation. The increase in P means that the entire society endures the cost of empty money creation. This situation is labeled by Ludwig von Mises, and outlined by Joseph Alois Schumpeter, as the mechanism of “forced savings” because the entire society prevents a portion of its regular consumption to enable entrepreneurs to pursue possible investment opportunities.⁴³ This scenario is real at the beginning of the operation. However, the credit operation is directed to an entrepreneur’s investment and, therefore, it aims at an improvement in the quantity of products available. If the investment succeeds then Q_t increases. If the investment succeeds, equation (28) tells us that P decreases in the future. Hence, in this instance, the mechanism of “forced savings” enables the entire society to secure a higher level of overall production which, desirably, overcomes the prior loss of welfare that occurred at moment 0.

At moment 1, when the borrower refunds the lender, who, it needs to be recalled, had just produced money with no effort at all, we get $M^1 = C^1 + I^1 + S^1$, where:

$$M^1 = M^0;$$

$$I^1 = I^0 - \Delta M;$$

$$S^1 = S^0 + \Delta M;$$

and, therefore, we can detail that

$$M^1 = C^0 + I^0 - \Delta M + S^0 + \Delta M;$$

and $M^1 = M^0$.

The empty money just created to grant producer credit is going to allow the entrepreneur to engage in his or her endeavors, looking for new and better ways of producing the goods and services society is in need of. In the first moment, it always implies an inflationary pressure. In the future, it can trigger overall welfare improvement. If the investment fails, the entire society endures an overall price increase and bears a “forced savings” period. However, if the investment succeeds, then it secures a meaningful situation, where $(\alpha - \Phi) > 0$, that allows for overall welfare improvement.

Again, it is interesting to inquire about the effects of using collateral in this operation. At the beginning of the operation, the bank creates new money to provide the entrepreneur with the purchasing power he or she needs to acquire an already made product. Later on, if the investment succeeds the entire productive sector is facing a new

⁴³ Schumpeter (1934, p. 109) wrote: “if I am not mistaken it was von Mises who coined the extremely happy expression ‘forced savings’ for this process.” Ludwig von Mises (1881-1973), was an Austrian economist.

competitor and, accordingly, the entire sector sells its products at lower prices while producing higher quantities. This new entrepreneur's regular activity provides him or her the means to refund the bank. Resorting to collateral is useless when the investment succeeds. If the investment fails and the bank is entitled to secure collateral, that asset is going to be sold in the market at a bargain price just to enable the bank to score its gain. Since empty money costs nothing to produce, any positive sell value is interesting for the bank. Hence, once again, using collateral introduces the same problems as mentioned in operation 3 – i.e., it produces a disequilibrium in the collateral market and it induces banks to reduce their credit operations by selecting entrepreneurs who can provide good collateral opportunities, rather than good business opportunities. Once again, using collateral always entails a loss.

It is worth putting forth that the lender who is financing an entrepreneur's operation is, indeed, an entrepreneur's business associate. The lender is a special kind of business partner who might be expected to get out of the entrepreneur's concern sometime, in the future. However, it does not have to be that way. Banks can, and, in fact, sometimes do, become a forever entrepreneur's business associate.

Yet, the continuous creation of empty money fosters inflationary pressures. According to equation (1), the economic agent's perception of a continuous price increase fosters an immediate surge in prices as a natural response of the economic agent trying to shield against an anticipated overall welfare decrease. However, the literature has already shown that price increments below five percent do not spark inflationary pressures.⁴⁴ It is consensual that there is a need for the supervision of the monetary authorities to preclude banks from creating empty money if, and only if, the inflation approaches the five percent level.

We are now in a position to identify the foundations of a strong monetary system. First, it must provide an active money market between those who want to save right now with those who rather consume in the present and save later on in the future. Second, it cannot allow the creation of empty money to grant consumer credit. Third, it cannot allow the creation of empty money when inflation is above the five percent threshold. And fourth, the use of collateral in credit operations cannot be allowed. From these four guidelines, it stands out that the separation between the market for real money and the market for empty money requires the supervision of a monetary authority. Moreover, the credibility of this proposed monetary system necessarily requires the existence of an

⁴⁴ E.g., see Alvarez et al. (2019) "From hyperinflation to stable prices: Argentina's evidence on menu cost models."

effective legal system. Otherwise, default in credit operations can lead to huge malfunctions in the monetary system, like resorting to collateral, engaging in Ponzi or debt relief scams, and so on. The economist is aware that the efficiency of any monetary system is not endogenous in itself and depends upon its articulation with the remaining institutional structures of society.

Economic balance

The economic system's dependence on the remaining institutional structures of a society has always been recognized by neoclassic theory. Adam Smith's "invisible hand" is grounded in a free and competitive environment where firms keep entering the markets as long as a profitable opportunity is foreseen. If the institutional environment is set in such a way, then a full-employment economy is naturally reached, and profits consistently tend to zero. The efficiency of the economic system depends on the institutional environment where human behavior evolves.

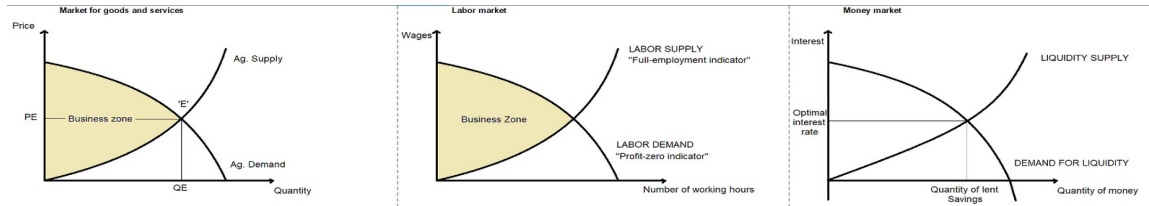
Understanding how institutions interact with economic behavior is a challenge that the economist is forced to accept. Institutions are mechanisms of power and set the scope, boundaries, and intensity of the action of any single individual. The combined effect of every individual's behavior fosters a macroeconomic effect that, itself, presents a new and specific circumstance to which the individual is, once again, asked to respond. The economic system's balance is, therefore, closely related to the way structures are raised and power is executed.

We can easily illustrate economic balance both graphically and mathematically. Figure 13 exposes that the economy is balanced when the three significant markets rest in equilibrium simultaneously: the market for goods and services, the labor market, and the money market. Mathematically, with elegance and simplicity, equation (28) does exactly the same thing.

Figure 13 standouts the conditions for economic balance in every single market. In the market for goods and services, equilibrium is a point that rests on the supply curve requiring, therefore, a full-employment economy. Moreover, equilibrium is a point setting up a price where the demand curve equals the supply curve which, itself, implies a profit zero situation. In the labor market, equilibrium is a point that rests on the labor supply curve and, once again, that means a full-employment economy. Finally, in the money market, the equilibrium is a point where the interest rate combines with the quantity of money available to exchange future purchasing power for present acquisitive power. Of

course, this depends on the total quantity of money in circulation and has nothing to do with the creation of new money.

Figure 13. Economic balance



Source: Author's own creation

Almost angelically, by detailing that $M = PQ_t$ or, equivalently, that $P = M/Q_t$, the equation shows that being P the weighted average price of every good and service delivered in the economy, it encompasses both the value of labor and the price of exchanging purchasing power between two different moments in time (i.e., the money market's interest rate). And both must be left free to adjust according to market needs.

Hence, if the markets are free (i.e., if people can freely enter and exit the markets at will, and can freely negotiate the terms of their agreements) then the economy approaches a situation professed by the neoclassical economists. Furthermore, because each economic agent is freely negotiating the terms of their agreements, this freedom requires that none of the three significant markets can be manipulated. Otherwise, unbalances occur. Whether we consider any of the three markets depicted in Figure 13 or engage in the mathematical analysis instead, we end up concluding that every economic agent, with no exception, has always been trying to manipulate the markets through institutional mechanisms. In both cases, the subtle function of freedom cannot escape the analyst's eye.

Economic balance is compromised because individuals are competing for the biggest slice of the pie, rather than cooperating to make it big. Firms try to build monopolistic positions where they can score huge profits at the expense of the remaining society. Unfortunately, entrepreneurs engage in these endeavors without being aware of their own contribution to a wider price increase and a general decrease in the quantities of goods available for consumption. Despite encompassing a non-optimal and illogical rationale, unions claim higher wages and decline any working hour reduction without realizing that this is an action that necessarily perpetuates unemployment. The banking industry is permanently creating new money regardless of its contribution to decreasing overall welfare, including their own. Accordingly, each tribe of our society struggles for surviving,

trying to use institutions to constrain others' activities. The process compromises overall survival itself. Under an emotionally driven basis, the entire society claims a superior position for their tribe only, accepting fear and greed guidelines, rather than seating together deeply involved in an honest problem-solving activity. Freedom is extolled when cooperation sets in and trusting structures are enacted.

Across history, the economic balance has continuously been nothing else but a mirage. Virtuous economics must focus on countering this trend despite the historical absence of economic balance being quite explained by the cumulative interaction between institutions and individuals. Resting on either the graphical analysis, equations (28) and (34), or simple good common sense, it is fairly easy to understand that the first step forward is to enact a full-employment economy. The second step ahead, a little bit more tricky, is to ensure that money creation is engaged only when the economy requires it. This action always triggers an economic unbalance. Unless someone can point out a better institutional environment and explain why, it is, therefore, mandatory to inquire how can this be so while safeguarding economic balance.

Economic development

The compound made of equations (28) and (34) outlines how economic development happens. Before concluding on the policies that best allow reaching economic development, the economist needs to inquire about the circumstances where a possible policy is going to be used. When we are setting up circumstances, we are raising institutions that condition the effectiveness of any set of rules that can be raised afterward. For example, by restricting ourselves to existing technology, there cannot be any industrial investment in a place that does not have the means to provide electricity to the potential new firms. In this instance, regardless of its eventual adequacy in other circumstances, any set of policies to foster industrial investment is simply useless. A similar effect occurs when an institutional rule forbids a firm to enter the market. And there are so many other examples we can think of that are restraining people's executive power. Circumstances dictate the effectiveness of any sectoral policy and not the other way around. Primarily, the institutional environment dictates a given set of circumstances. Equations (28) and (34) outline that economic development happens when both the quantity of available goods improves and the individuals' work efforts are optimal.

Increasing the quantity of available goods, Q , as advocated by equation (28), leads to a reduction in the average weighted price, P , of the goods and services available, and is

something that, to trigger economic development, cannot depend exclusively on the creation of new money. The quantity of available goods, Q_t , can improve on events such as a new technological discovery or a better harvest. Technological improvement is dependent on the quality of infrastructures, education, and overall living conditions that enable people to develop critical thinking which, in turn, leads them to question the way things are being done. Only then, people will be able to figure out a better way of doing things; otherwise, they will be resting executing the same thing, the same way, day after day, without any improvement capability. Yet, effective deployment of new ideas depends upon providing executive power to the discoverer. Freedom is the cornerstone of economic development. But it demands the proper circumstances to be effective.

Herein, we are studying the institutional variables that channel opportunistic behavior into either a positive or negative mode. Equation (34) provides a clear view of the circumstances needed to secure economic development. It is plain that we need to have a number of variables as close as zero as possible. These are taxation (stealing or expropriation), τ ; unemployment, γ ; and the costs of new money creation, Φ .⁴⁵ Moreover, there are variables that we need to have as higher as possible. These are the potential for scale economies, α ; the total amount of output available for entrepreneurs to work with, A ; and the total amount of output that employees are able to produce when working for an employer, B . Nonetheless, both types of variables, those who need to be zero and those who need to be as high as possible, escape the average person's awareness when we try to evaluate their current contribution to economic development.

First, it is important to realize that the extension to which taxation is a cost to the economy is not easy to reckon with. In fact, it is widely accepted by economics that circumstances matter. Governments collect taxes to acquire the purchasing power that enables them to build roads, bridges, harbors, schools, and so many other infrastructures of both material and immaterial character. In this realm, governments are producing infrastructures that enable the remaining economic agents to evolve from. Hence, the government acts as an employer who wants to maximize $(1-\tau-\gamma+\alpha-\Phi)[A(e_e)^{1/2}+\beta B(e_w)^{1/2}]$, where A is the country's total potential output and τ is effectively zero when it is simply the price paid by the citizens for the goods and services made available by the government. In a country where stealing and sheer expropriation do not occur, economic development can be developed at full potential regardless of the amount of taxes that the government

⁴⁵ Inflation is an immediate cost of new money creation. However, there are other economic costs involved. The creation of new money provides unbalances in the economic agents' purchasing power which, alone, condition the executive power of a number of economic actors and lead to the loss of opportunities.

actually collects. This is true just as long as taxes remain lower or equal to the benefits provided to society.

Second, it is worth noticing that unemployment needs to be zero at all times, and this poses a severe difficulty. The proper institutional environment to propel economic development starts with a full-employment economy. This puts a serious social hardship because the immediate reaction of the economy demands a distribution of the total production available among the entire active population. And, for a rationally bounded pirate ‘A,’ it is so difficult to understand how he or she will end up better off holding just 20% of the available loot rather than taking 98% of it...

Third, the cost of creating new money needs to be zero. However, this does not mean that money creation must be zero. Economists know that money creation always sparks inflation pressures in the first moment but these costs can be offset by the increase in production that society might be able to reach in the future. In this realm, as posed by Schumpeter (1934, p. 102) “*no one other than the entrepreneur needs credit.*” Equations (28) and (34) emphasize this statement. The creation of new money needs to be left to the situations where the entrepreneur detects an investment opportunity and there are no savings left in the hands of an investor wishing to take advantage of the opportunity. This opportunity must provide scale economies regardless of the economic sector the entrepreneur is coming from. In this situation, we will have $(\alpha - \Phi) > 0$, and economic development occurs.

Additionally, it is worth mentioning that the simple existence of a financial structure to make economic transactions easy, acting as a facilitator of means of payment, is nothing more than a service provided to society by banks. In this instance, the bank is just like another employer holding a potential output, A , and whose economic efficiency is reached by maximizing the equation $(1 - \tau - \gamma + \alpha - \Phi)(A(e_e)^{1/2} + \beta B(e_w)^{1/2})$.

Fourth, economic development occurs when society manages to increase the potential of its total production – i.e., when A and B in equation (34) get as big as possible. This happens by creating the circumstances that facilitate both sharing know-how and empowering individuals. It is worth noting that before specifying policies, the economist must focus on the gap between existing circumstances and the minimal required circumstances for a given policy to succeed. Specifically, accepting that unemployment can grow is a negative circumstance for total output. And any circumstance hindering the society’s total output growing potential always jeopardizes economic development...

Finally, equations (28) and (34) provide an understanding that it is not possible to have a consistent economic development unless economic balance coexists. Our economy resembles a baby who first crawls and falls. Afterward, the baby starts walking when he or she is able to consistently secure his or her balance. Gradually, he or she will learn to run at full speed without losing his or her balance. The global economy has not made it to its infancy yet. Overall markets' disequilibrium has always jeopardized the world's economic development.

The circumstances that provide economic balance push us to consider equation (1), where perception and executive power combine to raise a consequential opportunity. That means that there is no need to weave moral considerations to conclude on the deployment of negative opportunistic behavior or even throwing such arguments to support a change. In fact, morality, defined as proper behavior, is always dictated by existing circumstances. Forgetting about the circumstances that provide economic development is simply the same as accepting a path of negative opportunistic behavior that compromises overall welfare. Economic development can only occur when positive opportunistic behavior is identified as providing a better payoff than the alternative for negative opportunistic behavior. It is thus required to explain how it can be done by inquiring about the eleven basic questions economics exists for.

What to produce?

Despite its simplicity, this is an incredibly tricky question for the economist to answer. At first sight, it seems that society just has to produce every good and service that is wanted. These are supposed to be signaled by the presence of profitable opportunities. The entrepreneur fulfills society's wants by directing his or her efforts toward the production of these specific goods. But the economist is concerned with granting overall welfare. Difficulties loom out when people are persistently doing nonoptimal work efforts, where $e \in]e^*, e_{limit}]$, working too much to produce a given set of goods rather than increasing their leisure time. Further problems emerge from the excessive exploitation of natural resources that imperils future consumption while curbing productive impetus. Providing a solid answer on what to produce goes far beyond identifying society's wants and requires a deep dive into society's deepest needs.

Often, society's deepest needs lead the decision-maker to wonder about the question of what to produce. Doubts emerge around three main directions: domestic goods, export

goods, or the production of money.⁴⁶ Favoring the production of each one of these three items sets up the economy on a specific path. When we adopt the ideal that the global economy is not to be considered as one, then pernicious effects occur. Each country's decision impacts its own welfare and the welfare of others as well. Often, rather than the country's or the global economy's deepest needs, it is the decision maker's deepest wants that determine the final result.

It is, therefore, required to inquire about the effects of favoring each one of these productive guidelines. We know, from equation (28), that $M = PQ_t$, which can be rewritten to accommodate a separation between the weighted average price of the different types of goods produced in the economy. Accordingly, $PQ_t = P_{CI}(C_q + I_q) + P_S S_q$, where P_{CI} is the weighted average price of the goods produced in the economy that are going to be used for either consumption or investment purposes, P_S is the weighted average price of the goods produced in the economy that are going to be saved for future use, and C_q , I_q , and S_q are the quantities of goods produced in a given period. Equation (32) sets that $M = C + I + S$, where the aggregates can be split to express a country's total production that is going to be sent abroad. Hence,

$$M = P_{CI}(C_q + I_q) + P_S S_q \quad (37)$$

Regarding the second member of equation (37), notice that the first part indicates the overall value of the market for goods and services while the second part indicates the overall value of the money market. This detail of analysis enables us to identify the effects that a decision toward an idiosyncratic productive guideline produces on both sectoral and overall welfare.

We denote the index m for the importing country and the index x for the exporting country. Moreover, following traditional notation, we use the up arrow, \uparrow , to signal a variable increase, and the down arrow, \downarrow , to identify a variable decrease.

Table 4 illustrates the number of operations that a country can engage in.

Table 5 details each of the international business decisions identified in Table 4 by funding type.

⁴⁶ This analysis has started in the eighteenth century, when Adam Smith outlined that exports always contribute to making the home products dear; that tariffs always protect the home country monopolies; and that "*it is the maxim of every prudent master of a family, never to attempt to make at home what it will cost him more to make than to buy*" (Smith, 1776, p. 446). In the nineteenth century, it has received a further thrust by David Ricardo who proved that every country must specialize in producing the goods where they have a comparative advantage even if the country does not produce anything better at all. David Ricardo showed that everyone provides an extremely valuable contribution to improve overall welfare. Mankind simply needs to seek the optimal solution.

Table 4. Type of country / Type of product

Operation	Type of country	Type of product
5	Importer	Consumer product
6	Exporter	Consumer product
7	Importer	Investment product
8	Exporter	Investment product

Source: Author's own creation

Table 5. Funding types and international commerce

Operation	No funding	Internal funding	External funding
5	5.1	5.2	5.3
6	6.1	6.2	6.3
7	7.1	7.2	7.3
8	8.1	8.2	8.3

Source: Author's own creation

Operation 5.1: Importing of a consumer product.

In this instance, the importing country is going to finance the commercial operation by using a fraction of its savings.

It is often escaping the average person's awareness that we save what we produce. We produce durable goods and choose to consume them later on. It is worth highlighting that we do not save money. We receive money in exchange for what we produce, and we use the money to exchange what we produce for the goods and services we want or need at the chosen time. Hence, the importing country finances its import of a consumer good by exchanging future consumption for present consumption.

Using equations (32) and (37), we can write the starting situation of the importing country like

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}'(C_{qm}' + I_{qm}') + P_{Sm}'S_{qm}'.$$

When the import operation occurs, an increase in present consumption is happening while being offset by a corresponding decrease in the country's savings. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0(C_{qm}^0 + I_{qm}^0) + P_{Sm}^0S_{qm}^0,$$

where

$$C_m^0 = C_m' + \Delta C,$$

$$C_m^0 > C_m',$$

$$I_m^0 = I_m',$$

$$S_m^0 = S_m' - \Delta C,$$

$$S_m^0 < S_m',$$

$$M_m^0 = M_m'.$$

We use equation (37) to understand what happens to the overall welfare of the importing country.

We can write that

$$M_m^0 = P_{CIm}^0(C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0(S_{qm}' - \Delta S_{qm}).$$

Thus, because $M_m^0 = M_m'$, $(C_{qm}' + \Delta C_{qm} + I_{qm}') > (C_{qm}' + I_{qm}')$ and $(S_{qm}' - \Delta S_{qm}) < S_{qm}'$, if we assume that the importing country's aggregate marginal propensity to save is standing still (which is a fairly reasonable assumption because peoples' expectations on what the future might bring do not change suddenly), then $P_{CIm}^0 < P_{CIm}'$ and $P_{Sm}^0 > P_{Sm}'$. In other words, the increase in the available quantity of goods leads to a decrease in the weighted average price of the market for goods and services, $(C_{qm} + I_{qm})\uparrow \Rightarrow P_{CIm}\downarrow$, while the decrease in the quantities of available savings leads to an increase in its price, meaning that $S_{qm}\downarrow \Rightarrow P_{Sm}\uparrow$ or, in money terms, the reduction of the money available in the money market leads to an increase in its interest rate.

At moment 0, when the import operation is executed, domestic firms face a decrease in their selling price. This effect might force some of them to go bankrupt. If unemployment is allowed in this economy, then a further consequence of a reduction in the level of production leads the country to register a near future where, necessarily, $P_m^I > P_m^0$, because $M_m^I = M_m^0$ and, from equation (28), we know that $M_m^I = P_m^I Q_m^I$ while Q_m^I has decreased due to the unemployment increment. In this instance, the importing country is now facing higher interest rates which further hinder firms from finding good investment opportunities. At moment 0, using savings to finance the importation of consumer goods allows the entire population to benefit from an initial reduction in the price of goods and services while the wealthiest fraction of the society still benefits from higher interest rates rewarding their savings.

However, if wages cannot be adjusted by firms and unemployment is allowed, the higher interest rate at moment 1 leads the economy to reduce the production of investment goods while increasing their weighted average price. The importing country will be exhibiting unused productive units. The importing country compromises its future ability to reach scale economies. Moreover, the decrease in the weighted average price of the goods sold in the market for goods and services will press overall wages down. The country that insists on this type of operation will face an increase in its internal social rich-

poor inequality while dooming the entire population to a continuous overall growing inequality when compared with other countries that strive for reaching scale economies.

This conclusion contrasts with the positive effect of reducing the importing country's internal prices in the market for goods and services, at moment 0 . Thus, we can finally remark that a country must only focus on producing import goods when it can reach scale economies that will set the country free from future imports of these consumer goods.

It is, therefore, interesting to analyze what happens in the exporting country.

Operation 6.1: Exporting of a consumer product.

In this instance, the exporting country is going to finance the commercial operation by using a fraction of its consumer products.

Again, using equations (32) and (37), we can write the starting situation of the exporting country like

$$\begin{aligned} M_x' &= C_x' + I_x' + S_x' \Leftrightarrow \\ M_x' &= P_{C_{Ix}'}(C_{qx}' + I_{qx}') + P_{S_x'}S_{qx}'. \end{aligned}$$

When the export operation occurs, a decrease in present consumption is happening while being offset by a corresponding increase in the country's savings. Hence,

$$\begin{aligned} M_x^0 &= C_x^0 + I_x^0 + S_x^0 \Leftrightarrow \\ M_x^0 &= P_{C_{Ix}^0}(C_{qx}^0 + I_{qx}^0) + P_{S_x^0}S_{qx}^0, \end{aligned}$$

where

$$\begin{aligned} C_x^0 &= C_x' - \Delta C, \\ C_x^0 &< C_x', \\ I_x^0 &= I_x', \\ S_x^0 &= S_x' + \Delta C, \\ S_x^0 &> S_x', \\ M_x^0 &= M_x'. \end{aligned}$$

Once again, we use equation (37) to understand what happens to the overall welfare of the exporting country. Accordingly, we can write that

$$M_x^0 = P_{C_{Ix}^0}(C_{qx}' - \Delta C_q + I_{qx}') + P_{S_x^0}(S_{qx}' + \Delta S_{qx}).$$

Thus, because $M_x^0 = M_x'$, $(C_{qx}' - \Delta C_{qx} + I_{qx}') < (C_{qx}' + I_{qx}')$ and $(S_{qx}' + \Delta S_{qx}) > S_{qx}'$, and assuming that the exporting country's aggregate marginal propensity to save is standing still (which, as explained above, it is, indeed, a fairly reasonable assumption), then $P_{C_{Ix}^0} > P_{C_{Ix}'}$ and $P_{S_x^0} < P_{S_x'}$. That is, the decrease in the available quantity of goods necessarily leads to an increase in the weighted average price of the market for goods and

services, $(C_{qx} + I_{qx}) \downarrow \Rightarrow P_{Cix} \uparrow$, while the increase in the quantities of available savings leads to a decrease in its price, meaning that $S_{qx} \uparrow \Rightarrow P_{Sx} \downarrow$ or, in money terms, the increment of the money available in the money market leads to a decrease in its interest rate.

At moment 0, when the export operation is executed, domestic firms face an increase in their selling price. At moment 0, apart from the exporting firm that scores higher profits, no one else is improving their living conditions.

However, all in all, firms are facing lower interest rates which, along with the increase in the selling prices, constitutes a stimulus to pursue further investments. Employment tends to increase and the increase in the level of production leads the country to register a near future where, undoubtedly, $P_m^I < P_m^0$, because $M_m^I = M_m^0$ and, from equation (28), we know that $M_m^I = P_m^I Q_m^I$ while Q_m^I has increased. In this instance, the exporting country is now facing lower interest rates which further stimulates firms to take advantage of every good investment opportunity.

At moment 0, we conclude that, apart from the exporter firm, using internal consumption goods to finance the export of consumer goods leads the entire population to worsen their living conditions. Nonetheless, if firms are free to take advantage of existing opportunities, the lower interest rate at moment 0 leads the economy to increase the production of both investment goods and consumer goods while decreasing their weighted average price. At moment 1, the exporting country will be exhibiting higher employment levels and reduced unused resources. The exporting country enlarges its future ability to reach scale economies. We end up concluding that a country must focus on producing export goods because, despite an initial worsening of overall living conditions, it will definitely spur future positive opportunistic behavior that delivers an overall welfare improvement.

It is important to realize that this success is strictly dependent on two specific conditions. First, it depends upon the existence of an importing country that has some savings to exchange with. Second, another critical requirement to reach such a worthy goal is that, at moment 1, the investment increase must be done without the creation of new money. Otherwise, the increase in the quantity of available money pushes prices higher while either reducing or nullifying the positive effects of the lower interest rate in the money market. These conditions are mandatory to determine the economic success of a country that simply exports a fraction of its consumer goods.

It is, thus, interesting to analyze what happens when international business operations are internally financed.

Operation 5.2: Importing of a consumer product resorting to new money creation.

In this instance, the importing country is going to finance the commercial operation by creating new money.

The starting situation can be depicted, as usual, by

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}' (C_{qm}' + I_{qm}') + P_{Sm}' S_{qm}'.$$

When the import operation occurs, an increase in present consumption is happening while simultaneously being followed by an increase in the quantity of available money. Assuming that the marginal propensity to save remains standing still, we will have a distribution of the quantity of new money just created between the market for goods and services and the money market. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0 (C_{qm}^0 + I_{qm}^0) + P_{Sm}^0 S_{qm}^0,$$

where

$$M_m^0 = M_m' + \Delta M,$$

$$C_m^0 = C_m' + \Delta C,$$

$$C_m^0 > C_m',$$

$$I_m^0 = I_m',$$

$$S_m^0 = S_m' + \Delta S,$$

$$S_m^0 > S_m'.$$

Once again, we use equation (37) to analyze what happens to the overall welfare of the importing country.

Accordingly, we can write that

$$M_m^0 = P_{CIm}^0 (C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}) \Leftrightarrow$$

$$M_m' + \Delta C = P_{CIm}^0 (C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}).$$

We know that $(S_{qm}' + \Delta S_{qm}) > S_{qm}'$ and that $(C_{qm}' + \Delta C_{qm} + I_{qm}') > (C_{qm}' + I_{qm}')$ but we cannot make conclusions on what is happening to the weighted average price of goods, P_{CIm}^0 , nor to the interest rate in the money market, P_{Sm}^0 . At moment 0, it is certain that $M_m^0 = P_m^0 Q_m^0$ but, because M_m^0 has increased by ΔM , and Q_m^0 has increased by ΔQ , the resulting variation in the average price level of the economy of the importing country is given by $\Delta M/\Delta Q$. Accordingly, at moment 0, the overall welfare improves in the importing country if, and only if, $\Delta Q > \Delta M$, which is the same as requiring that the price of the imported consumer good be lower than its domestic price before the import operation.

At moment I , after the consumption of the imported good, the economy returns to its prior productive level but holds a higher quantity of money in circulation. Hence, necessarily, $M_m^I = P_m^I Q_m^I$, where $M_m^I > M_m'$, $Q_m^I = Q_m'$, and $P_m^I > P_m'$. We can, therefore, conclude that a country cannot consistently be funding the importation of consumer goods through the creation of new money because that is an inflationary practice. And once inflationary expectations are driving economic agents' behavior, the peril of negative opportunistic behavior sets in, and economic development becomes severely jeopardized.

It is worth outlining that equation (32), by defining that $M = C + I + S$, poses a tautological identity similar to the accounting identity where Assets = Equity. In this particular situation, we are emphasizing the financing of the importing of a consumer good with new money creation in the importing country regardless of the way the exporting country finances the trade. Nonetheless, we can assume that the exporting country is financing the international transaction by using its savings. Table 6 puts into perspective the evolution of each country's simplified balance sheet. The step-by-step analysis of how the aggregates change in each country helps to clarify the above exposition.

Table 6 represents an accounting possibility. It is important to outline that only amounts, as the outcome of PQ , are under scrutiny. For simplicity, Table 6 poses an initial situation where the marginal propensity to consume and save is equal in both countries and resting standing still. The literature shows that the marginal propensity to save changes in reaction to fluctuations of either householders' income or householders' perceived uncertainty, and there is none happening in this case. Hence, the assumption holds the necessary robustness.

Step 0 represents the starting point. Step 1, in the importing country, represents the creation of new money of $\Delta M = +200$. The counterpart of the increase of $+200$ in equity is identified by raising $+200$ in the Savings of the importing country. Step 1, in the exporting country, simply represents the move of produced consumer products evaluated in $+200$ between the exporting country's aggregates Consumption and Savings. Step 2, in the importing country, is the simplified accounting balance sheet where the $+200$ value in Savings is exchanged with the exporting country's consumer goods evaluated in $+200$. At this point in time, the importing country exhibits a relationship between its economic aggregates that do not fit the country's natural propensity to save. Step 2, in the exporting country, identifies the $+200$ received from the importing country to pay for the international transaction. This value enters the country's Savings and, similarly to what happens in the importing country, the exporting country, momentarily, also exhibits a non-

natural relationship between its economic aggregates. Step 3, in both countries, simply evidences the restitution of the natural economic balance according to the normal propensity to save of these economies.

Accounting aggregates only provide the ability to understand how amounts flow between both countries' economic aggregates. However, accounting amounts are silent on what concerns the evolution of price, P , and quantities, Q , whereby they are quite limited in their contribution to helping the economist understand what happens to the overall welfare in each country.

Table 6. Importing and exporting countries' accounting evolution

Step	Importing Country		Exporting Country	
	Assets	Equity	Assets	Equity
0	C = 600 I = 200 S = 200	M = 1,000	C = 600 I = 200 S = 200	M = 1,000
1	C = 600 I = 200 S = 400	M = 1,200	C = 400 I = 200 S = 400	M = 1,000
2	C = 800 I = 200 S = 200	M = 1,200	C = 400 I = 200 S = 400	M = 1,000
3	C = 720 I = 240 S = 240	M = 1,200	C = 600 I = 200 S = 200	M = 1,000

Source: Author's own creation

Operation 6.2: Exporting of a consumer product resorting to new money creation.

In this instance, the exporting country is going to fund the commercial operation by creating new money.

The starting situation can be depicted, as usual, by

$$M_x' = C_x' + I_x' + S_x' \Leftrightarrow$$

$$M_x' = P_{C_{Lx}'} (C_{qx}' + I_{qx}') + P_{Sx'} S_{qx}'.$$

Once again, assuming that the marginal propensity to save remains standing still, we will have a distribution of the new quantity of money just created between the market for goods and services and the money market.

Hence,

$$M_x^0 = C_x^0 + I_x^0 + S_x^0 \Leftrightarrow$$

$$M_x^0 = P_{C_{Lx}^0} (C_{qx}^0 + I_{qx}^0) + P_{Sx^0} S_{qx}^0,$$

where

$$M_x^0 = M_x' + \Delta M,$$

$$C_x^0 = C_x' + \Delta C,$$

$$C_x^0 > C_x',$$

$$I_x^0 = I_x',$$

$$S_x^0 = S_x' + \Delta S,$$

$$S_x^0 > S_x'.$$

Using equation (37) to analyze what happens to the overall welfare of the exporting country, we can write that

$$M_x^0 = P_{C_{Lx}^0} (C_{qx}' + \Delta C_{qx} + I_{qx}') + P_{Sx^0} (S_{qx}' + \Delta S_{qx}) \Leftrightarrow$$

$$M_x' + \Delta M = P_{C_{Lx}^0} (C_{qx}' + \Delta C_{qx} + I_{qx}') + P_{Sx^0} (S_{qx}' + \Delta S_{qx}).$$

We know that $(S_{qx}' + \Delta S_{qx}) > S_{qx}'$ and that $(C_{qx}' + \Delta C_{qx} + I_{qx}') > (C_{qx}' + I_{qx}')$. Furthermore, we know that the new consumer goods, ΔC_{qx} , are going to be exported and, therefore, $\Delta S_{qx} = 0$. It means that these quantities, ΔC_{qx} , do not impact the domestic prices of goods and services sold. Moreover, the new money just created has an impact on the quantities available in the economy, but not on their prices. Accordingly, at moment 0, the interest rate in the money market remains standing still as well.

At moment 1, after the consumer goods have been exported, the economy returns to its productive level but holds a higher quantity of money in circulation. Hence, necessarily, $M_x^1 = P_x^1 Q_x^1$, where $M_x^1 > M_x'$, $Q_x^1 = Q_x'$, and $P_x^1 > P_x'$. We can, therefore, conclude that a country cannot consistently be funding the exportation of consumer goods through the creation of new money because that is an inflationary practice. In this instance, the exporting firm scores a gain at the expense of the remaining society. Furthermore, inflation might create expectations that spark negative opportunistic behavior. These, in turn, set economic development in reverse mode.

Putting together the analysis of operations 5.1, 5.2, 6.1, and 6.2, we conclude that the production of export goods is beneficial for an economy if, and only if, it is not financed

with the creation of new money. It is, therefore, required to inquire on what are the effects of resorting to external debt rather than relying on the creation of new money to engage in these operations.

Operation 5.3: Importing of a consumer product by resorting to external debt.

The importing country is going to finance the commercial operation by resorting to external debt. The external debt might be coming from two different sources: the savings held in the foreign country's money market or new money just created to fund the operation. Herein, because we need to identify if the simple production of money can be of assistance to improving a country's living conditions, we will additionally consider the situation where the new money is coming from a third party that is not directly participating in the international business deal. Hence, the two funding sources will be analyzed.

The starting situation of the importing country can be depicted, as usual, by

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}' (C_{qm}' + I_{qm}') + P_{Sm}' S_{qm}'.$$

When the import operation occurs, an increase in present consumption is happening while simultaneously being followed by an increase in the quantity of available money. As usual, assuming that the marginal propensity to save does not change, we will have a distribution of the new quantity of money just created between the market for goods and services and the money market. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0 (C_{qm}^0 + I_{qm}^0) + P_{Sm}^0 S_{qm}^0,$$

where

$$M_m^0 = M_m' + \Delta M_F \text{ } (\Delta M_F \text{ denotes the money coming from the foreign country),}$$

$$C_m^0 = C_m' + \Delta C,$$

$$C_m^0 > C_m',$$

$$I_m^0 = I_m',$$

$$S_m^0 = S_m' + \Delta S,$$

$$S_m^0 > S_m'.$$

Still, we rely on equation (37) to analyze what happens to the overall welfare of both importing and lending countries.

Regarding the importing country, we can write that

$$M_m^0 = P_{CIm}^0 (C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}) \Leftrightarrow$$

$$M_m' + \Delta M_F = P_{CIm}^0 (C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}).$$

We know that $(S_{qm}' + \Delta S_{qm}) > S_{qm}'$ and that $(C_{qm}' + \Delta C_{qm} + I_{qm}') > (C_{qm}' + I_{qm}')$ but we cannot make conclusions on what is happening to the weighted average price of goods, P_{CIm}^0 , nor to the interest rate in the money market, P_{Sm}^0 . In moment 0, it is certain that $M_m^0 = P_m^0 Q_m^0$ but, because M_m^0 has increased by ΔM_F , and Q_m^0 has increased by ΔQ , the resulting variation in the average price level of the economy of the importing country is given by $\Delta M_F / \Delta Q$. Accordingly, at moment 0, the overall welfare improves in the importing country if, and only if, $\Delta Q > \Delta M_F$, which is the same as requiring that the price of the imported consumer good be lower than its domestic price before the import operation. At moment 0, the impact of the operation on the importing country's welfare is similar to the situation where the domestic country produces new money to fund the international business deal.

At moment 1, after the consumption of the imported good, the economy returns to its productive level while refunding the savings that has received from the foreign country at moment 0. The latter forces M_m^1 to decrease. Hence, $M_m^1 < M_m^0$ and equation (37) can be written like $M_m^0 - \Delta M_F = P_{CIm}^1 (C_{qm}^1 + I_{qm}^1) + P_{Sm}^1 S_{qm}^1$. Again, assuming that the marginal propensity to save of the importing country remains unchanged, we know that a reduction in each parcel of the second term of the equation is mandatory. Moreover, from moment 0 to moment 1, we know that a reduction certainly happens in the quantities of goods available but we cannot identify what happens to the average weighted prices of the economy when compared with the situation before the beginning of the operation. If there is no interest rate payment due to the foreign country then $M_m^1 = M_m'$; otherwise $M_m^1 < M_m'$ and the importing of a consumer good funded with external debt surely leads the domestic country to worsen its overall welfare at moment 1 when compared with the country's reality before the operation.

The severity of the decrease in the future living conditions of the importing country directly depends on its institutional environment. If unemployment is allowed, along with a fierce rigidity of wages, then the decrease in the money available forces firms to reduce production, leads employers to fire employees, and, because the adjustment in the quantities is more severe than the adjustment in prices,

[notice that

$$\begin{aligned} M_m^1 &= P_{CIm}^1 (C_{qm}^1 + I_{qm}^1) + P_{Sm}^1 S_{qm}^1, \\ P_{CIm}^1 (C_{qm}^1 + I_{qm}^1) &< P_{CIm}' (C_{qm}' + I_{qm}'), \\ P_{Sm}^1 S_{qm}^1 &< P_{Sm}' S_{qm}', \end{aligned}$$

$$\text{and } |\Delta Q_t| > |\Delta P|]$$

the final living conditions in the importing country will be reached at a lower productive capacity combined with proportionally higher price levels than the starting situation in both the money market and the market for goods and services. The institutional environment directly conditions the capacity of any economy to face macroeconomic unbalances.

However, we still need to inquire about what happens in the foreign country that is lending the money. There are two possibilities: the foreign country, to fund the other country's importing operation, either uses its savings or creates new money out of thin air.

Operation 5.3.1: External debt is coming from foreign country's savings.

Starting with the first possibility, we, therefore, use equation (37) to identify what happens in this country. The starting situation is given by $M_F' = C_F' + I_F' + S_F'$. After using a fraction of the country's savings to grant a loan to the country that is going to perform an importing operation, the situation changes to $M_F^0 = C_F^0 + I_F^0 + S_F^0$ where

$$M_F^0 = M_F' - \Delta M_F,$$

$$C_F^0 = C_F',$$

$$I_F^0 = I_F',$$

$$S_F^0 = S_F' - \Delta M_F,$$

$$S_F^0 < S_F'.$$

If this country's marginal propensity to save tends to remain the same, then the decrease in the quantity of savings leads to an increase in their price; hence, $S_{qF}' \downarrow$, $P_{SF}^0 \uparrow$, and $P_{CIF}^0 \uparrow$ for $(C_{qF}^0 + I_{qF}^0) \downarrow$. Note that the increase in the interest rate, $P_{SF}^0 \uparrow$, induces a reduction in the firms' investment, and the economy is going to resort to its usual balance between the entire production and the distribution between the money market and the market for goods and services. In this instance, overall living conditions in the lending country are worsening by funding the foreign country using a fraction of its savings.

At moment I , however, the lending country is receiving its previously saved funds plus interest. Now, $M_F^I = C_F^I + I_F^I + S_F^I$ where

$$M_F^I = M_F^0 + \Delta M,$$

$$M_F^I > M_F^0,$$

$$C_F^I = C_F^0,$$

$$I_F^I = I_F^0,$$

$$S_F^I = S_F^0 + \Delta M,$$

$$S_F^I > S_F^0,$$

$$S_F^I > S_F'.$$

Accordingly, and considering that the country's marginal propensity to save does not change, we understand that the increase in the quantity of available money induces the interest rate to decrease, the firms' investment to increase, and an overall welfare improvement to occur compared with the starting situation before the operation takes place. At moment I , overall welfare improves, at least, due to the value of the interest collected from the country that engaged in the importing operation.

In practical terms, the two countries engage in an agreement to exchange the opportunity of consuming in the present (moment 0) for the opportunity to consume a little more later on (moment I).

Operation 5.3.2: External debt is coming from foreign country's empty money creation.

It is thus relevant to analyze how overall welfare changes in the lending country if new money is created to perform the operation. In this instance, we know that overall economic balance does not change in the lending country and every macroeconomic aggregate is standing still. The new money just created is simply handed to the importing country on the promise that it is due for future reimbursement. Hence, $M_F^0 = C_F^0 + I_F^0 + S_F^0$ where

$$M_F^0 = M_F',$$

$$C_F^0 = C_F',$$

$$I_F^0 = I_F',$$

$$S_F^0 = S_F'.$$

At moment 0 , there is no effect at all on the economy of the lending country. But things might change at moment I , when the importing country is refunding the lending country, with or without interest.

At moment I , the economy of the lending country can be expressed, as usual, by $M_F^I = C_F^I + I_F^I + S_F^I$ where $M_F^I = M_F^0 + \Delta M$ and, since the quantity of the goods produced in the economy does not change, then the increase in the available money causes an increase in the weighted average prices of the economy. That is, at moment I , the lending country faces inflationary pressures due to the operation. However, this can only be true if the new money captured from the importing country is going to enter the regular

functioning of the lending country's economy. Moreover, it will be of concern to inquire about who is entitled to hold this purchasing power, for it is a vehicle of economic inequality.

Leaving apart these microeconomic concerns, the presence of empty money in the economy always presents a danger to its price stability. This peril grounds the intervention of the monetary authorities, albeit this need has been triggered by the simple creation of empty money in the first place. We, therefore, conclude that the creation of new money to finance a different country engaging in an importing operation cannot bring an overall welfare improvement in the lending country.

Nonetheless, it is worth outlining how the source of public debt is so crucial to overall welfare. On one hand, the lending of money performed with the country's savings is nothing more than a regular transaction between the opportunity of immediate consumption for the opportunity of future consumption. On the other hand, it is worth outlining that the executive power granted to an individual who can control the creation of empty money extends well beyond the boundaries of his or her own country. As we have seen, this individual is totally controlling overall welfare for being entitled to decide if it delivers purchasing power to the importing country and to his or her own country. But humans make mistakes – i.e., we make some wrong options that do not lead to the optimal solution for ourselves. It is thus mandatory to enact transparent records of the origins of public debt for it does not make any sense at all that the entire world population be dependent on a single person's will.

Summing up, we can resume the answer about what to produce considering the three different categories. Regarding the production of consumer goods, we conclude that countries must focus on producing export goods while refusing to resort to external debt or to the creation of new money. Countries might focus on producing import goods if, and only if, they will be able to reach scale economies at home that enable them to produce cheaper than abroad. Finally, when used to fund the transaction of a consumer product, the production of money always jeopardizes overall welfare.

However, we know from equation (34) that the creation of empty money can be used to improve overall welfare if, and only if, the country manages to overcome the costs of new money production with the revenue coming from scale economies – i.e., if $(\alpha - \Phi) > 0$ in equation (34). Hence, regarding investment goods, and despite risking to be tedious, we need to inquire about the kind of production that countries must focus on. We proceed by following the methodology used above.

Operation 7.1: Importing of an investment product.

In this instance, the importing country is going to finance the commercial operation by using a fraction of its savings. It aims at a future that enables its domestic production of consumer goods cheaper than by acquiring them abroad.

Once again, using equations (32) and (37), we can write the starting situation of the importing country like

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}' (C_{qm}' + I_{qm}') + P_{Sm}' S_{qm}'.$$

When the import operation occurs, an increase in present investment is happening while being offset by a corresponding decrease in the country's savings. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0 (C_{qm}^0 + I_{qm}^0) + P_{Sm}^0 S_{qm}^0,$$

where

$$C_m^0 = C_m',$$

$$I_m^0 = I_m' + \Delta I,$$

$$I_m^0 > I_m',$$

$$S_m^0 = S_m' - \Delta I,$$

$$S_m^0 < S_m',$$

$$M_m^0 = M_m'.$$

Using equation (37) to understand what happens to the overall welfare of the importing country, we can write that

$$M_m^0 = P_{CIm}^0 (C_{qm}' + I_{qm}' + \Delta I_{qm}) + P_{Sm}^0 (S_{qm}' - \Delta S_{qm}).$$

Thus, because $M_m^0 = M_m'$, $(C_{qm}' + \Delta C_q + I_{qm}') > (C_{qm}' + I_{qm}')$ and $(S_{qm}' - \Delta S_{qm}) < S_{qm}'$, if we consider that the importing country's aggregate marginal propensity to save is standing still, then $P_{CIm}^0 < P_{CIm}'$ and $P_{Sm}^0 > P_{Sm}'$. In other words, the increase in the available quantity of goods leads to a decrease in the weighted average price of the market for goods and services, $(C_{qm} + I_{qm}) \uparrow \Rightarrow P_{CIm} \downarrow$, while the decrease in the quantities of available savings leads to an increase in its price, meaning that $S_{qm} \downarrow \Rightarrow P_{Sm} \uparrow$ or, in money terms, the reduction of the money available in the money market leads to an increase in its interest rate.

At moment 0, when the import operation is executed, domestic firms face a decrease in their selling price. This effect might force some of them to go bankrupt. If unemployment is allowed in this economy, then a further consequence of a reduction in the level of production leads the country to register a near future where, necessarily, $P_m^I > P_m^0$,

because $M_m^I = M_m^0$ and, from equation (28), we know that $P_m^I = M_m^I/Q_m^I$ while Q_m^I has decreased due to the unemployment increment. Unless the quantity of money in circulation is accordingly reduced, the rise of unemployment always creates inflationary pressure in the economy. In this instance, the importing country faces higher interest rates which further hinder firms from finding good investment opportunities. At moment 0, using savings to finance the importation of investment goods allows the entire population to benefit from an initial reduction in the price of goods and services, while the society's wealthiest fraction still benefits from higher interest rates rewarding their savings.

However, if wages cannot be adjusted by firms and unemployment is allowed, the higher interest rate at moment I leads the economy to reduce the production of investment goods while increasing their weighted average price and the importing country will be exhibiting unused productive units. The importing country needs to use its investment goods to reach scale economies. Otherwise, the importing country compromises its future ability to improve overall welfare. Moreover, the decrease in the weighted average price of the goods sold in the market for goods and services will press overall wages down. This pressure will diminish if the country can increase the quantities of goods produced. Note that from equation (28) we know that $P = M/Q_t$ and, therefore, if M is standing still when Q_t increases then P decreases (thus pressing wages downward). Unless it manages quite well to reach scale economies, the importing country will face an increase in rich-poor inequality. However, if the country succeeds in its endeavor, then it approaches its productive capacity from those of foreign countries and becomes a better business partner for future international transactions regardless of being a partner of importing or exporting nature.

Operation 8.1: Exporting of an investment product.

In this instance, the exporting country is going to finance the commercial operation by using a fraction of its investment products.

Again, using equations (32) and (37), we can write the starting situation of the exporting country like

$$M_x' = C_x' + I_x' + S_x' \Leftrightarrow$$

$$M_x' = P_{C_{Ix}'} (C_{qx}' + I_{qx}') + P_{S_x'} S_{qx}'.$$

When the export operation occurs, a decrease in present investment is happening while being offset by a corresponding increase in the country's savings. Hence,

$$M_x^0 = C_x^0 + I_x^0 + S_x^0 \Leftrightarrow$$

$$M_x^0 = P_{CLx}^0(C_{qx}^0 + I_{qx}^0) + P_{Sx}^0 S_{qx}^0,$$

where

$$C_x^0 = C_x',$$

$$I_x^0 = I_x' - \Delta I,$$

$$I_x^0 > I_x',$$

$$S_x^0 = S_x' + \Delta I,$$

$$S_x^0 > S_x',$$

$$M_x^0 = M_x'.$$

Once again, we use equation (37) to understand what happens to the exporting country's overall welfare. Accordingly, we can write that

$$M_x^0 = P_{CLx}^0(C_{qx}' + I_{qx}' - \Delta I_{qx}) + P_{Sx}^0(S_{qx}' + \Delta S_{qx}).$$

Thus, because $M_x^0 = M_x'$, $(C_{qx}' + I_{qx}' - \Delta I_{qx}) < (C_{qx}' + I_{qx}')$ and $(S_{qx}' + \Delta S_{qx}) > S_{qx}'$, and assuming that the exporting country's aggregate marginal propensity to save is standing still, then $P_{CLx}^0 > P_{CLx}'$ and $P_{Sx}^0 < P_{Sx}'$. That is, the decrease in the available quantity of goods necessarily leads to an increase in the weighted average price of the market for goods and services, $(C_{qm} + I_{qm})\downarrow \Rightarrow P_{CLm}\uparrow$, while the increase in the quantities of available savings leads to a decrease in its price, meaning that $S_{qm}\uparrow \Rightarrow P_{Sm}\downarrow$ or, in money terms, the increment of the money available in the money market leads to a decrease in its interest rate.

At moment 0, when the export operation is executed, domestic firms face an increase in their selling price. This effect forces unions to react and claim higher wages. At moment 0, apart from the exporting firm that scores higher profits, no one else is improving their living conditions.

However, overall, firms are facing lower interest rates which, along with the increase in the selling prices, constitutes a stimulus to pursue further investments. Employment tends to increase and the increase in the level of production leads the country to register a near future where the produced quantities increase, $Q_m^I > Q_m^0$. Hence, just as long as there remains no production of new money, then $P_m^I < P_m^0$, for we know that $M_m^I = P_m^I Q_m^I$ and $M_m^I = M_m^0$. In this instance, the exporting country is now facing lower interest rates which further stimulate firms to take advantage of every investment opportunity.

If firms are free to take advantage of existing opportunities, the lower interest rates at moment 0 lead the economy to increase the production of both investment goods and consumer goods while decreasing their weighted average price. At moment 1, the exporting country will be exhibiting higher employment levels and reduced unused

resources. The exporting country enlarges its future ability to reach scale economies at the same time that it provides the opportunity for the foreign country to improve its living conditions as well. Again, we end up concluding that a country must focus on producing export goods because, despite an initial worsening of overall living conditions, it spurs future positive opportunistic behavior that delivers an overall welfare improvement in both importing and exporting countries.

Operation 7.2: Importing of an investment product resorting to new money creation.

In this instance, the importing country is going to finance the commercial operation by creating new money. The starting situation can be depicted, as usual, by

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}'(C_{qm}' + I_{qm}') + P_{Sm}'S_{qm}'.$$

When the import operation occurs, an increase in present investment is happening while simultaneously being followed by an increase in the quantity of available money. Again, assuming that the marginal propensity to save remains unchanged, we will have a distribution of the new quantity of money just created between the market for goods and services and the money market. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0(C_{qm}^0 + I_{qm}^0) + P_{Sm}^0S_{qm}^0,$$

where

$$M_m^0 = M_m' + \Delta M,$$

$$C_m^0 = C_m',$$

$$I_m^0 = I_m' + \Delta I,$$

$$I_m^0 > I_m',$$

$$S_m^0 = S_m' + \Delta S,$$

$$S_m^0 > S_m'.$$

As usual, we use equation (37) to analyze what happens to the overall welfare of the importing country. Accordingly, we can write that

$$M_m^0 = P_{CIm}^0(C_{qm}' + \Delta C_{qm} + I_{qm}') + P_{Sm}^0(S_{qm}' + \Delta S_{qm}) \Leftrightarrow$$

$$M_m' + \Delta I = P_{CIm}^0(C_{qm}' + I_{qm}' + \Delta I_{qm}) + P_{Sm}^0(S_{qm}' + \Delta S_{qm}).$$

Note that, at moment 0, it is certain that $M_m^0 = P_m^0 Q_m^0$. But because M_m^0 has increased by ΔM , and Q_m^0 has increased by ΔQ , the resulting variation in the average price level of the economy of the importing country is given by $\Delta M/\Delta Q$. Accordingly, at

moment 0, the overall welfare improves in the importing country if, and only if, $\Delta Q > \Delta M$, which is the same as requiring that the price of the imported investment good be lower than its domestic price before the import operation. We know that $(S_{qm}' + \Delta S_{qm}) > S_{qm}'$ and that $(C_{qm}' + I_{qm}' + \Delta I_q) > (C_{qm}' + I_{qm}')$. Yet we cannot make conclusions on what is happening to the weighted average price of goods, P_{CIm}^0 , nor to the interest rate in the money market, P_{Sm}^0 .

At moment 1, because new money has been created, the economy necessarily exhibits $M_m^1 = P_m^1 Q_m^1$, where $M_m^1 > M_m'$. After the imported investment goods have been put into use, the economy might change its productive level. This happens if, and only if, the imported investment goods enable an increase in scale economies. If this is the case, then the economy has increased its productive capacity; hence $Q_m^1 > Q_m'$ given the amount of money in circulation. Note that $P_m^1 = (M_m^0 + \Delta M)/(Q_m^0 + \Delta Q_m)$. If $\Delta Q_m > \Delta P_m$ then, necessarily, $P_m^1 < P_m^0$, leading to an improvement in the importing country's living conditions. However, if the importing country cannot use the investment goods to reach scale economies, it returns to the production level it had before the importing operation. In this case, $M_m^1 = P_m^1 Q_m^1$, where $M_m^1 > M_m'$, $Q_m^1 = Q_m'$, and $P_m^1 > P_m'$. This is a situation similar to the importing of a consumer good where we can conclude that the operation would be nothing else than an inflationary practice. We can, therefore, conclude that the importing of investment goods using the creation of new money can be used to improve a country's living conditions if, and only if, the importing country's investment goods contribute to increasing its scale economies.

Operation 8.2: Exporting of an investment product resorting to new money creation.

In this situation, the exporting country is going to fund the commercial operation by creating new money. The starting situation can be depicted, as usual, by

$$M_x' = C_x' + I_x' + S_x' \Leftrightarrow$$

$$M_x' = P_{CIX}'(C_{qx}' + I_{qx}') + P_{Sx}'S_{qx}'.$$

Once again, assuming that the marginal propensity to save remains standing still, we will have a distribution of the new quantity of money just created between the market for goods and services and the money market. Hence,

$$M_x^0 = C_x^0 + I_x^0 + S_x^0 \Leftrightarrow$$

$$M_x^0 = P_{CIX}^0(C_{qx}^0 + I_{qx}^0) + P_{Sx}^0S_{qx}^0,$$

where

$$M_x^0 = M_x' + \Delta M,$$

$$C_x^0 = C_x',$$

$$I_x^0 = I_x' + \Delta I,$$

$$I_x^0 > I_x',$$

$$S_x^0 = S_x' + \Delta S,$$

$$S_x^0 > S_x'.$$

Using equation (37) to analyze what happens to the overall welfare of the exporting country, we can write that

$$M_x^0 = P_{CIX}^0(C_{qx}' + I_{qx}' + \Delta I_{qx}) + P_{Sx}^0(S_{qx}' + \Delta S_{qx}) \Leftrightarrow$$

$$M_x' + \Delta M = P_{CIX}^0(C_{qx}' + I_{qx}' + \Delta I_{qx}) + P_{Sx}^0(S_{qx}' + \Delta S_{qx}).$$

We know that $(S_{qx}' + \Delta S_{qx}) > S_{qx}'$ and that $(C_{qx}' + I_{qx}' + \Delta I_{qx}) > (C_{qx}' + I_{qx}')$. Furthermore, we know that the new investment goods, ΔI_{qx} , are going to be exported. This means that these quantities do not impact the domestic prices of goods and services sold. Hence, in this instance, the new money just created has an impact on the quantities available in the economy, but not on their prices. Accordingly, at moment 0, the interest rate in the money market remains standing still as well.

At moment 1, after the investment good has been exported, the economy returns to its productive level but holds a higher quantity of money in circulation. Hence, necessarily, $M_x^1 = P_x^1 Q_x^1$, where $M_x^1 > M_x'$, $Q_x^1 = Q_x'$, and $P_x^1 > P_x'$. We can, therefore, conclude that a country cannot consistently be funding the exporting of investment goods through the creation of new money because that is an inflationary practice. In this instance, the exporting firm scores a gain at the expense of the remaining society. Furthermore, inflation might create expectations that spark negative opportunistic behavior. This, in turn, sets economic development in reverse mode.

Summing up the analysis of operations 7.1, 7.2, 8.1, and 8.2, we conclude that the production of investment goods for exportation is beneficial to an economy when it is not financed with the creation of new money. Moreover, we conclude that the importation of investment goods is always beneficial to an economy when it enables the reaching of higher levels of scale economies in production.

Operation 7.3: Importing of an investment product by resorting to external debt.

This is a situation where the importing country is going to finance the commercial operation by resorting to external debt. The external debt might be coming from two

different sources: the savings held in the foreign country's money market or new money just created to fund the operation. The two sources of funding will be considered.

The starting situation of the importing country can be depicted, as usual, by

$$M_m' = C_m' + I_m' + S_m' \Leftrightarrow$$

$$M_m' = P_{CIm}' (C_{qm}' + I_{qm}') + P_{Sm}' S_{qm}'.$$

When the import operation occurs, an increase in present investment is happening while simultaneously being followed by an increase in the quantity of available money. Assuming that the marginal propensity to save does not change, we will have a distribution of the new quantity of money just created between the market for goods and services and the money market. Hence,

$$M_m^0 = C_m^0 + I_m^0 + S_m^0 \Leftrightarrow$$

$$M_m^0 = P_{CIm}^0 (C_{qm}^0 + I_{qm}^0) + P_{Sm}^0 S_{qm}^0,$$

where

$$M_m^0 = M_m' + \Delta M_F \text{ } (\Delta M_F \text{ denotes the money coming from the foreign country}),$$

$$C_m^0 = C_m',$$

$$C_m^0 > C_m',$$

$$I_m^0 = I_m' + \Delta I,$$

$$S_m^0 = S_m' + \Delta S,$$

$$S_m^0 > S_m'.$$

We are going to use equation (37) to analyze what happens to the overall welfare of both importing and lending countries. Regarding the importing country, we can write that

$$M_m^0 = P_{CIm}^0 (C_{qm}' + I_{qm}' + \Delta I_{qm}) + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}) \Leftrightarrow$$

$$M_m' + \Delta M_F = P_{CIm}^0 (C_{qm}' + I_{qm}' + \Delta I_{qm}) + P_{Sm}^0 (S_{qm}' + \Delta S_{qm}).$$

We know that $(S_{qm}' + \Delta S_{qm}) > S_{qm}'$ and that $(C_{qm}' + I_{qm}' + \Delta I_{qm}) > (C_{qm}' + I_{qm}')$ but we cannot make conclusions on what is happening to the weighted average price of goods, P_{CIm}^0 , nor to the interest rate in the money market, P_{Sm}^0 . At moment 0, it is certain that $M_m^0 = P_m^0 Q_m^0$ but, because M_m^0 has increased by ΔM_F , and Q_m^0 has increased by ΔQ , the resulting variation in the average price level of the economy of the importing country is given by $\Delta M/\Delta Q$. Accordingly, at moment 0, the overall welfare improves in the importing country if, and only if, $\Delta Q > \Delta M$, which is the same as requiring that the price of the imported consumer good be lower than its domestic price before the import operation. Moreover, the effect on the interest rates, P_{Sm}^0 , depends on the magnitude of ΔQ . At moment 0, the impact of the operation on the importing country's welfare is similar to the

situation where the domestic country produces new money to fund the international business deal.

At moment I , after the imported investment good has been put into use, the economy reaches a new productive level and refunds the savings that have been received from the foreign country at moment 0 . The latter forces M_m^I to decrease. Hence, $M_m^I < M_m^0$ and equation (37) can be written like $M_m^0 - \Delta M_F = P_{CIm}^I(C_{qm}^I + I_{qm}^I) + P_{Sm}^I S_{qm}^I$. Again, we assume that the marginal propensity to save of the importing country remains unchanged and we have to consider the two possibilities: when the operation enables an increase in scale economies and when it does not.

We proceed with the latter situation. We know that, at moment I , a reduction in each parcel of the second term of the equation is mandatory. If the economy cannot improve its productive level (i.e., it cannot reach a higher level of productivity) then, from moment 0 to moment I , we know that a reduction certainly happens in the quantities of goods available. Nonetheless, we cannot identify what happens to the average weighted prices of the economy when compared with the situation before the beginning of the operation. Note that if there is no interest rate payment then $M_m^I = M_m'$; otherwise we will have $M_m^I < M_m'$ and the importing of an investment good funded with external debt surely leads the domestic country to worsen its overall welfare at moment I when compared with the country's reality before the operation. Once again, as explained in operation 5.3, the suffering of the people of the importing country depends on its own institutional environment.

When the operation enables an increase in the scale economies of the importing country, we need to analyze if it is sufficient to pay back the loan and the interest rate while leaving a significant improvement in the quantities produced. We know that $M_m^I < M_m^0$ and that equation (37) can be written like $M_m^0 - \Delta M_F = P_{CIm}^I(C_{qm}^I + I_{qm}^I) + P_{Sm}^I S_{qm}^I$. We know, for sure, that $M_m^I < M_m'$ because the country has paid back the external loan plus interest. Hence, the situation in the importing country is now, necessarily, $M_m^I = P_m^I Q_m^I$, $Q_m^I > Q_m'$, $P_m^I < P_m'$, and the country has improved its living conditions if, and only if, its productivity level enables it to score $(M_m^I/P_m^I) > (M_m'/P_m')$. Reaching a minimum threshold level of productivity is, therefore, a paramount criterion to figure out how resorting to external debt can be useful to improve a country's living conditions.

We have now to inquire about what happens to the lender country.

Operation 8.3.1: External debt is coming from foreign country's savings.

This situation is exactly the same as the situation depicted when the importing country was financing the acquisition of a consumer product. The starting situation is given by $M_F' = C_F' + I_F' + S_F'$. After using a fraction of the country's savings to grant the foreign country's loan, the situation sets $M_F^0 = C_F^0 + I_F^0 + S_F^0$ where

$$M_F^0 = M_F' - \Delta M_F,$$

$$C_F^0 = C_F',$$

$$I_F^0 = I_F',$$

$$S_F^0 = S_F' - \Delta M_F,$$

$$S_F^0 < S_F'.$$

Assuming that the country's marginal propensity to save remains the same, then the decrease in the quantity of savings leads to an increase in their price; hence, $S_{qF}' \downarrow$, $P_{sF}^0 \uparrow$, and $P_{CIF}^0 \uparrow$ for $(C_{qF}^0 + I_{qF}^0) \downarrow$. Note that the increase in the interest rate, $P_{sF}^0 \uparrow$, induces a reduction in the firms' investment, and the economy is going to resort to its usual balance between the entire production and the distribution between the money market and the market for goods and services. In this instance, overall living conditions in the lending country are worsening by funding the foreign country using a fraction of its savings.

At moment I , however, the lending country is receiving its previously saved funds plus interest. Now, $M_F^I = C_F^I + I_F^I + S_F^I$ where

$$M_F^I = M_F^0 + \Delta M,$$

$$M_F^I > M_F^0,$$

$$C_F^I = C_F^0,$$

$$I_F^I = I_F^0,$$

$$S_F^I = S_F^0 + \Delta M,$$

$$S_F^I > S_F^0 > S_F'.$$

Accordingly, we understand that the increase in the quantity of available money induces the interest rate to decrease, the firms' investment to increase, and an overall welfare improvement occurs compared with the starting situation before the operation takes place. At moment I , overall welfare improves, at least, due to the value of the interest collected from the country that engaged in the importing operation. However, and most likely, the productivity of the lending country also improves because the decrease in the

interest rate registered from moment 0 to moment 1 triggers new investment endeavors that, if successful, contribute to improving overall welfare.

Operation 8.3.2: External debt is coming from foreign country's empty money creation.

In this instance, the new money just created is simply handed to the importing country on the promise that it is due for future reimbursement. Hence, $M_F^0 = C_F^0 + I_F^0 + S_F^0$ where

$$M_F^0 = M_F',$$

$$C_F^0 = C_F',$$

$$I_F^0 = I_F' \text{ and}$$

$$S_F^0 = S_F'.$$

At moment 0 , there is no effect at all on the economy of the lending country. But things might change at moment 1 , when the importing country is refunding the lending country, with or without interest.

At moment 1 , the economy of the lending country can be expressed, as usual, by $M_F^1 = C_F^1 + I_F^1 + S_F^1$ where $M_F^1 = M_F^0 + \Delta M$ and, since the quantity of the goods produced in the economy does not change, then the increase in the available money causes an increase in the weighted average prices of the economy. That is, at moment 1 , the lending country faces inflationary pressures due to the operation if, and only if, that new money is going to be active in its financial system. However, there cannot exist consequences to the economy of the country that is producing new money out of thin air if the money coming from the foreign country is not going to enlarge the quantity of money in circulation in the lender country.

This reality sparks a very interesting and crucial remark. For instance, if the new money just created to fund the importing of a given country's investment goods is created and provided, for instance, by the International Monetary Fund (IMF), then the new money just created is used by the debtor country to pay for the importing goods they need. At moment 0 , the exporting country is receiving the payment for the sale. Hence, the total money available in the exporting country remains the same. In a nutshell, the effects in the exporting country are, as depicted in operations 6.1 and 6.2, beneficial to its economy because the export operation occurs without the creation of new money in its economy. In this case, the positive effects on the importing country are magnified if the importing country does not have to refund the money created out of thin air by the IMF (which the

literature calls “empty money”). Hence, in what concerns overall welfare, it is totally relevant if that money is ever refunded by the importing country. It is plain that empty money cannot be refunded in order to improve overall welfare. It is, therefore, possible to allow both exporting country and importing country to close the international operation at moment 0 , without further procedures. This remark outlines the importance of separating the money market (the market for real money) from the credit market (the market for empty money) because overall welfare can be boosted with the creation of new money if, and only if, that new money just created is not meant to be refunded. And this is a counter-intuitive concept.

Table 7 summarizes the consequences in the three countries over time. This is an international trade operation in which a country is buying, a country is selling, and a third country is financing the transaction by resorting to empty money creation.

The analysis of Table 7 consolidates the reasoning on why empty money cannot be refunded when society aims at optimizing overall welfare.

What to produce is, perhaps, the most tricky question to which economics must provide an answer. Its proper response completely escapes the regular citizen’s intuition. On one hand, the non-economist is induced to believe that society simply must produce the goods and services required to satisfy everyone’s needs. On the other hand, a deeper analysis of the problem leads the economists to conclude that the refund of empty money is harmful to overall welfare. And society is not ready to understand such concepts.

Table 7. Using a third party’s empty money creation in international trade

Importing country Resorts to external debt to fund its importing operation.	Exporting Country Resorts to investment goods to fund its exporting operation.	Funding Country Resorts to the creation of empty money to fund the importing country operation.
$M_m' = C_m' + I_m' + S_m'$	$M_x' = C_x' + I_x' + S_x'$	$M_F' = C_F' + I_F' + S_F'$
0 $M_m^0 = M_m' + \Delta M_F$ $C_m^0 = C_m'$ $I_m^0 = I_m' + \Delta I$ $I_m^0 > I_m'$, $S_m^0 = S_m' + \Delta S$ $S_m^0 > S_m'$	$M_x^0 = M_x'$ $C_x^0 = C_x'$ $I_x^0 = I_x' - \Delta I$ $I_x^0 > I_x'$, $S_x^0 = S_x' + \Delta I$ $S_x^0 > S_x'$	$M_F^0 = M_F'$ $C_F^0 = C_F'$ $I_F^0 = I_F'$ $S_F^0 = S_F'$
1 The positive effect on the importing country’s economy depends on increasing productivity above the threshold set by the cost of funding.	Assuming that the exporting country’s savings propensity is standing still across time, the economy restores the initial values of quantities and prices.	The economy of the funding country faces a sheer inflationary pressure if the quantity of money in circulation is increased by ΔM_F .

Source: Author’s own creation

Table 8 summarizes the conclusions reached by using the above analysis.

Table 8. Consequences on what to produce

Production of	Consequences
Import goods	It is positive to the country's economy if it allows reaching scale economies at home that enable a cheaper production than abroad.
Export goods	It is beneficial for an economy if it is not financed with the creation of new money.
Empty money	<p>The creation of new money to finance a different country engaging in an international operation cannot bring an overall welfare improvement in the lending country.</p> <p>The creation of new money can be used to improve a country's living conditions if it is used to fund either the importation or building of investment goods that contribute to increasing that country's scale economies in production.</p>

Source: Author's own creation

Obviously, the analysis that gave rise to the construction of Table 8 is oversimplified and demands an assessment of the robustness of the insights it has generated. There are a number of caveats worth outlining.

First, the analysis rests on a *ceteris paribus* approach where each operation is considered to be taking place while nothing else is happening simultaneously. Currently, the real world combines them all at once and, at the end of a given period, the positive or negative final result is simply the outcome of an economic mess. Nonetheless, in this realm, the *ceteris paribus* analysis clarifies where are coming from the forces that push the economy into a given path.

Second, the use of equation (37) provides a stronger foundation than relying upon the traditional macroeconomic analysis provided by tools like the IS-LM model.⁴⁷ Traditional macroeconomic analysis rests on the assumption that the economy starts from a balanced position to analyze how the economy's equilibrium changes after a given action. Due to the existence of several constraints and unemployment allowance, the world economies

⁴⁷ The IS-LM model represents the macroeconomic balance in the space "interest rate-produced quantities." The IS curve is downward sloping because, for the market for goods and services to remain balanced, a decrease in the interest rate requires an increase in the quantities produced in the economy. Conversely, the LM curve represents the balance in the money market where an increase in the produced quantities requires an increase in the interest rate in order to keep both the quantity of money in circulation and the price level unchanged.

have never been balanced. Equation (37), instead, is a tautological relationship that holds all the time, enabling the economist to take correct conclusions regardless of how unbalanced the economy might be at the first moment.

Third, the traditional macroeconomic analysis assumes that the economy's propensity to save is standing still. Economists know that this is not true because it severely depends on the level of uncertainty perceived by both firms and householders.⁴⁸ This caveat also applies to the conclusions expressed in Table 8.

Regardless of the strengths and limitations of the analysis resumed in Table 8, it still provides a solid reasoning foundation to understand why countries must focus on producing export goods, specializing in what they do better than others while exchanging those surpluses with other countries to acquire the products that others do comparatively better. Moreover, it clarifies why the production of money must be exclusively used for enabling scale economies while outstanding how carefully that new money must be handled. Particularly, new money creation must be reserved to fund investment endeavors only.

What to produce is a tricky decision. Each country, firm, or individual, needs to specialize in what it does best. However, contrariwise to common intuition and as shown by David Ricardo in 1817, each person, firm, or country is useful even when it does nothing better than the others do.⁴⁹ That is so because the overall welfare improvement occurs when each one of these two countries specializes in what it does comparatively better. If the markets are freely working then equation (1) applies, individuals have the executive power they need to pursue their business endeavors, and positive opportunistic behavior fosters economic development.

How to produce?

How to produce is another tricky question that virtuous economics needs to deal with. The question is answered by classical theory in a very simple way: by using the highest quantities of the least expensive resources. This means that firms need to choose between using more labor or more capital according to their comparative cost. However, as

⁴⁸ See, among many others, Carroll, Hall, & Zeldes (1992) "The buffer-stock theory of saving: Some macroeconomic evidence;" Carrol, C. D. (1997) "Buffer-stock saving and the life cycle permanent hypothesis;" and Carroll, C. D. (2001) "A theory of the consumption function, with and without liquidity constraints."

⁴⁹ See Ricardo, D. (1817) "On the principles of political economy and taxation." and Sousa, A. (1988) "Análise económica" in which the author provides a numeric example of two countries scoring gains from international commerce even when one of them is better at producing everything.

we have seen in equation (34), virtuous economics is concerned with improving overall welfare, which rather than factor prices depends on work efforts.

Answering how to produce requires a focus on how human opportunism is driven and, therefore, demands an understanding of how individuals exercise their executive power, how economic development occurs, and how society achieves optimal operability. Thus, we need to focus on four specific equations: equation (1), which defines opportunistic behavior; equation (15), which defines how executive power is exercised; equation (28), which identifies when economic development occurs; and equation (34), which specifies the optimal institutional environment to foster overall welfare. These equations encompass the scope defined by questioning “how and why” while considering the decision-making process of every economic agent.

Economics has evolved from a focus on the firms’ profit maximization goal to a different number of goals, like social responsibility, market share, or reputation. Hence, rather than exclusively focusing on the market price of each productive factor, firms span their decision-making process into a different set of variables that significantly impact overall welfare. It is widely accepted that socially responsible firms adopt policies that foster the well-being of the entire society, protect the environment, and avoid negative effects on them. These concerns go beyond the focus on the factor prices to decide about how to produce and set up a solid cornerstone of overall welfare rather than a lonely and blind reliance on individual firms’ specific interests.

That is why looking at our above-mentioned four fundamental equations helps us to make conclusions on how to produce. From equation (1) we know that the existence of an opportunity depends upon both the decision-makers’ perception of the available circumstances and their executive power to act; i.e., $O(p, \&)$. Hence, economic agents decide how to pursue a given goal according to that binomial. From equation (34), we know that overall welfare depends on the economic agents’ work efforts. Moreover, we understand that the decision concerns both employers and employees. In this realm, equation (15) highlights that the individual’s optimal work effort requires the ability to freely choose between being an employer or an employee, which intimately links equations (1) and (34). Finally, subtly, equation (28) emphasizes the role of economic balance to allow economic agents’ intrinsic motivation to boost overall welfare. Their interactions require a deeper analysis.

Economics has always put payoffs at the heart of human behavior. The neoclassical theory argues that firms, focusing on a profit maximization goal, decide how to produce

and optimize their productive efforts by considering the cost of the productive factors. This methodology embraces the notion that the decision on how to produce is left to the employer alone. Moreover, in this instance, the payoff that is under analysis is solely the entrepreneur's reward (which is usually and mistakenly associated with the notion of profit). Hence, according to the neoclassical theory and under an institutional economic environment that disregards employees' concerns, the entrepreneur chooses how to produce by focusing exclusively on his or her own payoff. Equation (1) shows that the entrepreneur's behavior is naturally driven by his or her perception of the applied circumstances and that an opportunistic behavior will be produced when he or she has the executive power to act. Hence, employers will focus on factor price analysis once they have the power to deal with an employee or a commodity exactly the same way, and while this practice seems to be a payoff optimizer to them.

However, virtuous economics aims at securing overall welfare, and an individual's intrinsic motivation to perform a job has a role in this matter. As put forth by Besley & Gathak (2016, p. 9) "*motivation is not fixed but is fluid and responsive to the environment to which individuals are exposed and can be a source of social and economic change.*" In their study, the authors considered that labor contracts were consistent with firms' competitive profit maximization behavior. Hence, while firms choose contracts according to factor analysis cost, workers choose effort levels. Under an institutional environment where unemployment is allowed and "*the number of workers exceeds the number of jobs, profit-maximizing firms will choose the lowest wages and bonuses consistent with limited-liability and minimum consumption constraints*" (Besley & Gathak, 2016, p. 20). Consequently, heterogeneity between firms' productivity necessarily leads to heterogeneity in the use of performance payments, regardless of their employees' intrinsic motivation to perform their job. In this instance, intrinsically motivated employees feel demotivated by working in firms that pay lower fixed wages, which equally applies to both the employees who are right for the job and those who barely perform. Obviously, as it is illustrated by Figure 7, in this case, the economy is not maximizing overall welfare, nor being efficient whatsoever.

The solution to induce the workers' best efforts, whether they be the employer or the employee, demands to simultaneously consider the insights brought by equations (1), (15), and (34). By combining equations (1) and (15), we realize that the economy needs to empower every economic agent with the executive power to act as an employer or as an employee, according to his or her best perception. Holding the executive power to act,

either as an employer or as an employee, allows any individual to seek a job where his or her own intrinsic motivation pulls. It can hardly be refuted that, reaching this level of development, the economy is setting up a consistent mechanism of both efficiency and overall welfare improvement. Equation (34) shows that this can happen under a full-employment economy only; i.e., where $\gamma = 0$. It is worth outlining that under a full-employment economy, where employers dismiss employees at will and employees are free to seek the job to which they are intrinsically motivated, every individual holds the executive power to take advantage of the available opportunities. Efficiency becomes a consequence of having the highest productive performance at the lowest possible work efforts, while magnifying overall welfare.

A full-employment economy is the first step to inducing overall welfare because it fosters positive opportunistic behavior of both firms and workers. However, it does not encompass the effects of the financial system on the economy. The proper institutional environment holding the foundations on how to produce still requires further inquiry.

Money exerts a number of pernicious effects on economic activity. These effects only deserve close attention because they give rise to negative opportunistic behavior – i.e., behavior that leads to worsening the individual's self-well-being when it is consistently replicated in society. Price discounts based on purchased quantities and using collateral as a requirement to perform a credit operation are two examples of how money can set the economy into reverse mode. These are two counter-intuitive concepts whose effects are often blurred when seen by the average citizen's eye. Yet, so many other examples can be pointed out. People's intrinsic motivations cannot be disregarded when overall welfare matters.

Using price discounts on purchased quantities is a practice induced by both buyer and seller profit maximization-driven behavior. This is possible because, whenever they can, firms set a selling price well above the total cost of production which, as previously explained, already foresees the wages paid to employers and employees and the financial cost that the firm is enduring. Hence, every firm could produce a little more and sell those quantities at a lower price but chooses not to do it. Firms have the executive power to act this way. Accordingly, when a buyer firm contacts its supplier, it always asks for a quantity discount, for it is a practice well understood by every entrepreneur. This practice leads those firms who enjoy higher purchasing power to acquire their raw materials cheaper than the majority of their competition. Consequently, big firms get bigger, small firms tend to disappear, and the lag between the production cost and the selling price tends to increase.

This practice induces the big market players to eliminate their competition in their economic sector and to exploit their markets at full potential. Moreover, those who do not do it imperil their own survival. The entire society is living significantly worse because everyone is trying to enjoy purchasing power actions this way. In this instance, through the price system, the use of money is fostering negative opportunistic behavior and the average citizen cannot act differently because the way executive power is channeled leads society to disregard the optimal solution, without even being aware of it.

In the other example, when banks require collateral to agree on a credit operation with a firm, they are reducing the number of eligible counterparts. Accordingly, only the firms holding assets will be able to enjoy higher purchasing power provided by the financial system. For an entrepreneur who is simply holding a good business idea, it is extremely difficult to acquire the purchasing power that enables him or her to bring to market a competitive product. The entire society is missing opportunities for overall welfare improvement. Because using collateral is a common practice in the banking industry, then every bank must act alike in order to secure its own survival. Nonetheless, this bank's behavior gradually reduces the number of available counterparts to work with. Using collateral as a requirement to provide purchasing power to an entrepreneur further induces banks' negative opportunistic behavior.

In both examples, equation (1) highlights how executive power combines with the economic agents' perceptions to deliver a given opportunistic behavior. The role of virtuous economics is to explain how it can be channeled into a positive mode and why it is so crucial to do so.

It is clear that the institutional environment is paramount for setting up economic agents' behavior into a positive mode. It is also evident that payoffs condition every person's economic behavior. Finally, it is also plain that fear and greed play a significant role too. Note that, under our current institutional environment, more than by greed, entrepreneurs, and banks are guided by fear, for their own survival is at stake. Therefore, the cornerstone rules for consistent economic development need to ensure that employers, employees, and banks, all act in such a way that contributes to improving overall welfare, without ever being stimulated to engage in negative opportunistic behavior.

Negative opportunistic behavior is always a challenge. There are a huge number of situations where, even inadvertently, people engage in this sort of behavior. In what concerns the financial system, negative opportunistic behavior is also fostered when new money is created to grant consumer credit. In this instance and as explained before, the

creation of new money leads to a general price increase, which immediately favors firms' profit goals. Later on, employees claim higher wages and the price system produces the adjustments that lead the economy to produce the same quantities at higher prices. However, banks want to be refunded with the money they have first produced, and householders are the ones who have to bear the liability. Accordingly, householders cut their consumption standards, decrease their living conditions, and firms do not sell the entire production anymore. Small firms might be facing bankruptcy unless wages adjust downward. Unavoidably, this process leads entrepreneurs to get wealthier while householders get poorer. Moreover, this process allows banks to live at the expense of the remaining society. And, objectively, being big regarding the enjoyment of acquisitive power becomes an obsession, whether for entrepreneurs or banks.

Following equation (34) guidelines, it is clear that institutional adjustments in the economy affect both employers' and employees' payoffs, by impacting the value of A (the entrepreneur's potential output), B (the employee's potential output), and β (the portion of total employee's production that is kept in the hands of the employer). Hence, and following equation (15) guidelines, the efficient economic adjustment requires that employees acquire the executive power to become an employer themselves. Of course that this can only be possible if banks create new money to grant purchasing power to the employees that want to become an employer. In this instance, banks are creating new money to finance investment activities rather than consumption ones. And that is one of the ways that banks contribute positively to overall welfare improvement.

We conclude that an effective combination of the use of the price system with positive opportunistic behavior requires three specific rules to be enacted: 1) enacting a full-employment economy; 2) abolishing the use of collateral when granting credit; 3) and ensuring that the creation of empty money is reserved for investment endeavors only. Let us analyze how each rule fosters the economic agents' positive opportunistic behavior, as set up by equation (1).

First, under a full-employment economy, the effects of fear and greed become under the control of every economic agent. Each person's survival is no longer at stake. Hence, an employer, an employee, or a bank clerk, is no longer worried about what he or she must do to prevent being eliminated from the economic activity. If a made economic decision goes against initial expectations then the economic agent adapts, and life still goes on peacefully. Banks can focus on granting investment credit to every good business idea regardless of the wealth possessed by the promoter of the investment project. In this

instance, the bank becomes a business associate, not because there are other parallel interests to be considered, but simply because there is a genuine belief that this business opportunity will be rewarding for the bank. If everything goes wrong, the bank clerk knows that either as an employer or as an employee, his or her future is not in danger anymore. Under a full-employment economy, every person is allowed to focus on their best efforts, while disregarding their worst fears.

Moreover, under a full-employment economy, profit tends to be zero, and only wage rewards human efforts. Under our current economies, it is widely accepted that profit exerts a positive effect by attracting people to the economic activities that society needs the most. The institutional environment that enacts a full-employment economy delivers exactly the same positive effect by attracting professionals to these activities, but at the fastest pace, and escaping from firms' entry barrier strategies. Hence, the free movement of people across the diverse professional occupations leads them to seek the jobs they are intrinsically motivated to and the ones that provide the highest payoffs – i.e., wages. And, as shown by prior literature, this leads to a further overall welfare increase that positively impacts both buyer and seller.

There is a fan of positive effects brought by the enactment of a full-employment economy. However, the most prominent feature is its ability to eliminate a significant portion of negative opportunistic behavior. Notice that under a full-employment economy, where wages are allowed to fluctuate and people can engage in any economic activity either as an employer or as an employee, then every time an entrepreneur is practicing monopolistic sell prices he or she is quite aware that the huge profitable situation cannot last. Therefore, rather than trying to secure monopolistic positions for as long as possible (as is currently happening in our institutional environment), the astute entrepreneur will secure a higher rewarding position by asking for a selling price close to the zero-profit level while producing as much as possible (for this procedure maximizes the entrepreneur's revenue in the shortest period of time – i.e., it is a wage maximizer strategy). Hence, under a full-employment economy, the entire society will be enjoying more products, at lower prices, and at the fastest pace. On the other hand, employees are no longer stimulated to engage in social loafing practices, entering and exiting the workplace just to get the paycheck that enables survival, because they know they can be fired and replaced by an intrinsically motivated person. Additionally, every employee will be naturally looking for performing at the best of his or her talents, and a sincere sense of accomplishment will be pursued. Finally, the legal frameworks needed to build a trusting

environment become much easier to deploy because lawmakers will be focused on improving overall welfare rather than being so much worried about their individual future. These almost poetic consequences of an adequate institutional environment escape the awareness of the average citizen.

Second, abolishing the use of collateral when granting credit stimulates banks to operate as an intermediary between the savings of those who do not wish to consume in the present with the savings of those who want to defer their future savings to immediate consumption. That is, banks will be prone to grant consumer credit using the available householders' savings, for that service provides them with a risk-free fee. Householders, in turn, earn higher interest rates for their saved money than what happens when the bank grants consumer credit by producing empty money. Finally, in the future, the bank will never be reducing the quantity of money in circulation in the economy, causing the malfunction evidenced by equation (28).

Third, as shown by equation (28), the creation of empty money by banks always fosters an economic disequilibrium. This unbalance triggers a number of economic reactions that impact overall welfare. According to the way the institutional environment channels human behavior, the prior exposition has already highlighted how economic imbalances are solved or aggravated. By abolishing the use of collateral when granting credit, banks are stimulated to deeply study their customers' investment project opportunities and become their business partners, regardless of the name, influence, and status the promoter might be exhibiting, for there are no other rewards to be considered than the business success itself. Hence, banks tend naturally to avoid negative opportunistic behavior.

According to virtuous economics, the economy must optimize work efforts, as illustrated by both equation (34) and Figure 7, and must engage in cooperation mode, as illustrated by Figure 4. Using the example of a pin factory, in 1776, Adam Smith has shown that productivity significantly increases when individuals specialize in doing just a fraction of the entire process of production. At the society level, productivity increases when some people specialize in producing bread, some others in producing shoes, others in producing transportation means, and so on, all of them produce useless surpluses for themselves that will be exchanged with the other persons' useful production. Virtuous economics understands that the optimal production process requires that society engages in a cooperative mode, rather than in a competitive attitude.

The adequate institutional environment necessarily exhibits the following features: 1) it enacts a full-employment economy; 2) it ensures a fully flexible labor market where employers either fire their employees or contract them at will, and employees quit their jobs while immediately entering a different one while wages are freely negotiated;⁵⁰ 3) it ensures the free entrance and exit of any economic activity; 4) it forbids the creation of new money to grant consumer credit; 5) it forbids the financial system of using collateral in any credit operation; 6) it relies on the monetary authorities to safeguard that no money is created when inflation is near the 5% threshold; and 7) it deploys an effective judicial system that acts promptly in case of default in credit agreements.

It is consensual that, before fixing the car, the mechanic must have the right tools for the job. Optimal production begins by setting up the institutional environment that leads the entire society to be engaged in the best productive efforts.

3) For whom to produce?

This question is very significant to economics because it settles a choice that defines who holds executive power – i.e., it defines who is the boss. Moreover, if society is addressing work efforts to produce something, that must be because of the process carts value. Virtuous economics states that society produces for the entirety of its members. However, since the producer produces to sell, he or she cannot ignore if the market has purchasing power to acquire the products. Ultimately, rather than producing for the entire community, the producer might be producing for someone who only possesses money. And this is quite an important distinction because, currently, purchasing power is not enjoyed by the whole society.

Notwithstanding the tight producers' focus on the buyers of their products, the literature addresses this theme thoroughly. Dixit & Stiglitz pose that “*the basic issue concerning production in welfare economics is whether a market solution will yield the socially optimum kinds and quantities of commodities*” (1977, p. 297). In their study, the authors embody the interests of both producers and consumers under the theme “Monopolistic competition and optimum product diversity.”⁵¹ They develop a number of models assuming that producers maximize their profit goals while consumers maximize a

⁵⁰ For mere curiosity, it is interesting to realize that, in 2020, five highly developed countries, such as Sweden, Denmark, Iceland, Norway, and Switzerland, do not enact any legal minimum wage requirement. Furthermore, it might be appealing to inquire about the levels of unemployment of these economies compared with other locations...

⁵¹ Dixit, A. K., & Stiglitz, J. E. (1977) “Monopolistic competition and optimum product diversity.”

utility function whose return is given by the consumption of different amounts of the various commodities available. The authors address the relationship between market and optimal resource allocation in the presence of heterogeneous consumers, by analyzing how the elasticities of either, the demand curve of each commodity in the basket or the consumers' utility function, interact with producer behavior to deliver a given market solution. Hence, this very interesting study inquires about the way scale economies evolve according to how consumers reward the producers' efforts. The study follows prior literature by delving into firms' positive opportunistic behavior of engaging in the economic activities that society needs the most. This leads to monopolistic competition in the sense that producers are firms, and each one seeks to find a market niche that provides monopolistic profits, while heterogeneous consumers, in turn, relish the benefits of product diversity. Overall welfare is, thus, under analysis.

The importance of scale economies to improve overall welfare is herein highlighted by the positive contribution of α in equation (34). Additionally, by equation (28), since scale economies induce an increase in the total produced quantity, Q_t , and $P = M/Q_t$, then the weighted average price of products, P , decreases in the economy, and overall welfare clearly improves.

Scale economies lead, necessarily, to the production of surpluses. If a firm is able to produce a huge quantity of a product, far beyond the needs of both their employers and employees, the usefulness of that surplus is to exchange it with the surpluses produced by other firms. Hence, the benefits of product diversity are magnified by the existence of scale economies.

Building overall welfare is synonymous with building quality of life for every member of society. Focusing on every individual's well-being rather than on a collective sense of welfare allows the economist to embody a crucial subtlety. When deriving the calculations to reach the conclusions brought by equation (34), we have assumed that every human being is maximizing a utility function that depends on consumption and leisure. Hence, to every human being, having a quality of life depends on simultaneously enjoying an ability to consume and having fun. In simple common words, this means possessing money and free time, while work efforts seem to be disregarded. The finesse of the analysis is, therefore, provided by anchoring individual opportunistic behavior to society's overall welfare.

The anchor is provided by equation (1) through the effects of expectations on the perceptions of every individual, as depicted in Figure 1. Every person in the economy

needs to be a producer and a consumer at the same time. Specifically, it is easily observable that opportunistic behavior adopts either a positive or negative nature according to the payoff perceived by the individuals. Hence, whether working as an employer or as an employee, it is likely that each person wakes up every morning thinking that, whatever he or she is going to do at work, is for self-advantage only – i.e., people are not aware of their own crucial contribution to overall welfare. People are hoodwinked toward a mindset where “making money” is all it matters.

By this token, the employer is naturally focused on engaging in monopolistic practices, because profit is mistakenly perceived as his or her main income source. On the other hand, he or she is looking at a wide fan of products whose consumption is desired. Yet, the employers’ consumptive activity is fully dependent upon his or her firm’s ability to sell the entire production. Consequently, the employer’s quality of life finds its boundaries in the dimension of the market available to sell the firm’s products.

The employer’s welfare is thus dependent on being able to sell whatever he or she produces. This dependence on the sale action in order to be able to consume later on leads Karl Marx to mention that the dependence among men was now broken, for a person did not care anymore if the one to whom sales are made may also be the ones whom the producer buys from. However, due to studies like the above-mentioned one by Dixit & Stiglitz (1977) point out, there is no doubt that the mutual dependence between producers and consumers still exists, although it happens indirectly, and in a much more efficient way for it allows the whole society of heterogeneous consumers to exchange their own entire production. Producers receive a salary for their productive efforts and exchange it for a wide range of products available that, desirably, satisfy every particular taste.

For whom to produce is necessarily related to value creation and inherent possession. The creation of value in an economy was exposed by the literature long ago.⁵² Karl Marx addressed the theme by showing that value was created through the ‘C-M-C’ process. The process is quickly summarized as follows. The first ‘C’ was labeling the surplus of a commodity produced aiming at being sold. ‘C-M’ stands for the money received upon the sale of that surplus just produced. The process ends with a ‘C-M-C’ format when the producer uses the money to acquire the surpluses produced by someone else, of which he or she is in need. Plainly, there cannot be any value creation when someone produces a surplus that cannot be sold; i.e., a surplus that is not considered useful by some other members of society.

⁵² See Marx, K. (1867) “Capital: A Critique of Political Economy.”

The ‘C-M-C’ process further consolidates the highlights brought by equation (28). Indeed, since $P = M / Q_t$, an increase in the production of money, alone, can only lead to an increase in the weighted average price of the economy. Marx outlines that the creation of value through the ‘C-M-C’ process comes from the exchange of useless surpluses for useful goods, under an economic transaction that benefits both sides. However, under the ‘M-C-M’ process, a person can only exchange a given quantity of money for a commodity and, later on, exchange it again for the same quantity of money. Hence, there cannot be any value creation for the entire society through the single production of money.

As illustrated by equation (34), the conclusion changes when we escape from the *ceteris paribus* assumption posed above. When society is maximizing overall welfare and creates empty money to provide the entrepreneurs with the purchasing power that enables investment activities, these, in turn, lead to scale economies. The overall welfare improvement happens due to the benefits of scale economies offsetting the costs of new money creation; i.e., when $(\alpha - \Phi) > 0$. In this instance, the increase in prices due to increasing the quantity of money in circulation in the first place is overcome by the decrease in prices brought by the future increase in production.

It is clear that a consistent overall welfare improvement requires the production of surpluses to be exchanged among the entire population. It is irrefutable that producing money must be strictly devoted to investment activities only, and just in case of need. Hence, whatever we do, we will be producing for ourselves and for others as well. We can, therefore, conclude that building overall welfare poses that it is not possible to consume at all unless having produced something useful to others first. And this conclusion can be reached regardless of who is owning the means of production.

It is, thus, curious to find out why society has not enacted a full-employment economy yet. In this realm, Marx’s observation deserves deeper attention because it settles a departure to inquire how opportunistic behavior is driven in the economy. The fact that the entrepreneur is owning the entire production provides him or her with the right of distributing the outcome of the productive efforts at will. Hence, employers will immediately maximize their consumptive ability by paying the smallest possible wage to their employees. Of course, under a full-employment economy, as illustrated previously, the employer will be pushed by market forces to increase the wages paid until his or her current profit is zero. Instinctively, the entrepreneur speaks against a full-employment economy, playing the economic game shown in Figure 4. And the entrepreneur will be

doing so while having the executive power to do it and misunderstanding the economic return at stake.

Furthermore, the fact that the entrepreneur is owning the entire production provides him or her the right to arbitrarily exchange those goods with the goods produced by others. But money is the vehicle that enables transactions. Hence, producers need to first sell the production in order to be able to maximize their utility function later on. Producers' purchasing power is fully dependent on sales. This reality consolidates a feeling that the producer produces for himself or herself and provides an emotionally driven stimulus toward deceptive practices. For instance, the pharmaceutical industry is impelled to alleviate the symptoms of a disease rather than eradicate it, because it needs to secure a long-term income coming from future sales. Similar reasoning applies to every other industry. Under an economy where full employment is not secured, the focus of the producer is on ensuring a continuous sell opportunity for himself or herself, leading the benefits that the products they made might bring to society to a secondary role. This institutional environment induces tribal behavior, where the interests of a fraction of the society seem to be opposed to the interests of someone else. Overall safety is jeopardized as well. People engage in competitive behaviors and seek a loot distribution following pirate 'A''s strategic guidelines. Evidently, because every producer acts alike, the entire society lives quite worse than what is capable of.

For whom to produce is, therefore, an ideological question. Yet, it is one that is grounded on the institutional environment. On one hand, when the individual is focused on producing for himself only – driven by fear, greed, and survival worries – then the engagement in negative opportunistic behavior is certain. Practices such as stealing, bribing, performing price dumping, engaging in political ties, or driving legal manipulations to prevent industry free-competition will be frequent. The individual is focused on competing rather than cooperating. Moreover, externalities, such as pollution, will not be avoided if it compromises the producer's selling ability in any way. Nevertheless, positive opportunistic behavior keeps going on, fueled by monopolistic competition. Every producer, whether being an employer or an employee, is aiming at overcoming their competition in the markets. Albeit unnecessarily, the institutional environment feeds the presence of economic cycles that are the outcome of the encounter between positive and negative opportunistic behavior. Currently, every person's ideal is to hold the biggest slice of the pie. People do not realize that, despite its potential to grow, the pie is getting smaller...

Virtuous economics highlights that rather than focusing on producing for himself or herself, every producer must focus on producing for the world where he or she belongs. Table 8 shows that a country improves its living conditions by focusing on producing export goods. This implies focusing on the importing country's needs. Building a trusting world that stimulates positive opportunistic behavior demands removing the fears of an individual's future survival. This means that society must produce for itself while ensuring the necessary purchasing power for all of its members.

Virtuous economics is about ensuring overall welfare. Otherwise, we can hardly escape stepping into the streets of management instead, where competitive advantage is desperately sought. Overall welfare improvement demands that each individual fully realizes the importance of his or her contribution to producing for himself or herself and for the world as well. This requires communicating with each other, exchanging ideas in a constructive way, and avoiding any decision-making process based on prejudice. Thereon, the economic game illustrated in Figure 4 will be played under the optimal 'cooperate-cooperate' combination.

4) How to deal with the scarcity of available resources?

The problem of scarcity is usually perceived as the limited availability of a given resource, whether it be of human or material nature. This guideline misleads the economist to address the cause of the scarcity problem as one of lack of quantity when, in fact, it might be simply a problem of excess of wants. Moreover, when resources are not perceived as scarce and escape the economist's attention, their preservation tends to be disregarded despite their value. Air and water are crucial examples of such human ludicrousness. Hence, the problem of scarcity has many dimensions which go far beyond quantitative analysis.

Science provides us with a multitude of angles to look at the problem of scarcity. These different views are crucial to identifying the best measures to overcome the lack of resources and goods. Particularly, the literature on strategic management considers a relevant resource one that has physical, human, or organizational nature, and enables a firm *"to conceive of and implement strategies that improve its efficiency and effectiveness"* (Barney, 1991, p. 206).⁵³ Resources of organizational nature include *"a firm's formal reporting structure, its formal and informal planning, controlling, and coordinating systems, as well as informal relations among groups within a firm and those in its*

⁵³ In this realm, check out Jay Barney's seminal work (1991) "Firm resources and sustained competitive advantage."

environment” (Barney, 1991, p. 206). In the management field, whose main focus has been profit maximization, the importance of rare resources is acknowledged when these resources enable firms to implement a value-creating strategy that is not simultaneously implemented by large numbers of other firms (Barney, 1991). To the economist, whose main focus is overall welfare, the relevance of a resource is not measured by the profit it can bring to the producer alone but rather by the increased utility it can bring to every member of society. To both of them, the organizational nature set by the institutional environment is paramount.

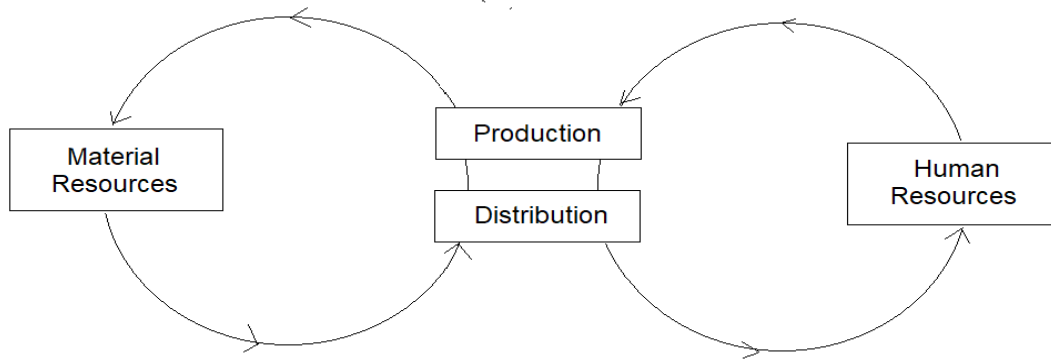
The importance of this distinction lies in its ability to escape from the claws of exclusive quantitative analysis while putting the spotlight on emphasizing the effects of positive opportunistic behavior to deal with the problem of scarcity. When one seeks to identify the fan of goods that are valuable to every human being, we might point out a diversity of goods such as air, water, food, shelter, health, family, joy, acknowledgment, leisure time, freedom, and so many others. These are all valuable goods for economists due to their contribution to overall welfare. Yet, they do not have to be rare to be a thing of great worth. And they do not have to be scarce for their scarcity to be a matter of concern.

Economists are specifically concerned with the relationships that society establishes with the available resources and how their distribution is secured across all members. According to equation (8), the entrepreneur maximizes his or her utility function beginning with a given amount of potential output, A , which, for instance, might be a piece of land. Furthermore, the entrepreneur also maximizes its utility function considering the amount of his or her production that is going to be lost through some form of expropriation, τ . It is, therefore, shown that the highest the amount of expropriation faced by producers, the lowest their optimal productive efforts. Equation (12), in turn, expresses how the laborer, who does not possess any land but holds a productive potential, B , optimizes his or her work efforts when working for someone else. Similarly, it is shown that the highest the value of the laborer’s production that is kept for the employer, β , the lowest the employee’s optimal work effort. In the herein presented theoretical apparatus, A represents the availability of physical resources, B conveys human know-how, and both τ and β entail the answer to how society decides to distribute all production among its members. The economic dimensions of the scarcity problem are illustrated in Figure 14.

To society, the scarcity problem embodies, at least, the following four dimensions: a dimension that encompasses the quantity of available material resources; a dimension that comprehends the availability and know-how of human resources; a dimension that deals

with efficiently combining together material and human resources – i.e, production; and a dimension that deals with minimizing the number of members facing the problem of paucity – i.e, distribution. These are economic dimensions because overall welfare directly depends on each one of them, and none can be disregarded.

Figure 14. The dimensions of the scarcity problem



Source: Author's own creation

The quantity of material resources directly relates to the quantity of human resources in several ways. First, and on a positive tone, the highest the number of humans available to consume a given produced surplus, the highest the scale economies that can be reached, and the cheaper those products might become available to the entire society. However, and on a negative strand, the highest the number of humans available to consume a given quantity of a finite resource, the higher the tendency of individuals to engage in expropriation practices – i.e., claiming for themselves the highest possible portion of the available resources. As we have seen in equations (8), (12), and (34), these relationships condition overall welfare by directly impacting each individual's work effort and leisure time.

Economics is consensual in recognizing the inability of the pricing mechanism to solve the scarcity problem utterly. Adam Smith was the first economist to outline that the monopolist is an individual that lives at the expense of the remaining society. Accordingly, the pricing mechanism is used by individuals as a tool that enables one producer to exchange a small fraction of his or her own production for as much as possible of the surpluses produced by others. He or she could produce higher quantities of his or her own production but chooses not to do it – i.e., chooses to make the product rare. The more the

economic sectors that are monopolies, the fewer the products available to the entire society. The monopolist is living worse the higher the number of products that are produced in the economy under similar circumstances as he or she is doing. In this instance, the pricing mechanism, combined with the executive power to act opportunistically in the negative mode, delivers an increase in the scarcity of the goods produced by the monopolist. Often, scarcity is, therefore, the outcome of human choices rather than a curse that society is doomed to.

On many occasions, the problem regarding the scarcity of goods is transformed into an exercise of making goods available. Human creativity, talents, and skills, are combined with the availability of physical resources to fulfill human needs. Today, tomatoes are produced in metal containers, fish and shrimps are produced under a land-based fish farming system, strawberries and aromatic spices are produced in hydroponics greenhouses, and vessels are able to transform seawater into freshwater. Similar examples are countless. However, its production and distribution demand overall cooperation among society's members. Creating the proper conditions for the human initiative to express its full potential requires a proper institutional environment.

Retrieving the “pirates” riddle presented previously, we are aware of the effects of attributing executive power to a single member of society at once. We remember that, under a single strategic move, pirate ‘A’'s optimal choice is to take for himself or herself 98% of the available loot, while leaving the remaining pirates unattended, without survival conditions. However, if pirate ‘A’ is going to work the land alone, he or she will never be able to reach a level of welfare as high as the one that is possible to reach if the island is split between the five pirates and they adopt a healthy institutional environment that enables them to optimize overall welfare. As shown hitherto, the availability of rum and tobacco becomes a reality, while owning alone 98% of the land did not particularly benefit pirate ‘A.’

Another interesting reflection on the pirates’ island comes from the reduction of the scarcity of both rum and tobacco that the pirate’s society is able to reach by employing the five pirates in the activities of their choice – i.e., where each one of them is more talented and productive. Moreover, their effectiveness depends on their mutual ability to produce buying decisions, which are just as important as their productive effort decisions. In this instance, the pricing mechanism acts positively as a tool that directs society’s production to where the goods are most needed or appreciated.

“Make it cheaper, not rare.” The sentence is, indeed, a simple but powerful guideline to properly deal with the problem of scarcity. Notice that, on crucial goods to human survival, such as air and water, the ecological problem brought by pollution is addressed by the precept, for society is naturally focused on avoiding the reduction of their availability. However, it is mandatory for its effectiveness to have the entire society making buying decisions.

The rationale for the interactions between producers and consumers is, therefore, under analysis when considering the problem of scarcity. Making cheaper products is a goal that settles several strategic actions, of which, two are paramount: 1) to increase scale economies; and 2) to increase the availability of the goods that enter the production process of other goods. By this token, producers will be driving their efforts toward fulfilling the consumers’ needs. Particularly, goods such as water, energy, transportation, and communications are factors of production crucial to every economic activity. Hence, in order to increase overall welfare, society must endeavor all efforts to make them available at the lowest possible cost. Yet, illogically, this is not the case.

It is, thus, required to understand why non-optimal choices are consistently being taken across time. Equation (1) poses that opportunities are taken when the individual perceives that it is possible to improve his or her utility by doing something that he or she is empowered to do. Hence, when a person can control all available resources, can also take advantage of the remaining society regarding its distribution. On the other hand, every time a person understands that he or she can take a piece of the entire production without providing any work effort, it is likely that the individual adopts such behavior.⁵⁴ Figure 4 shows that the outcome of these behaviors is the economic game people play. Individuals endeavor all their efforts to take the biggest portion of the available products without realizing that this behavior compromises society’s future ability to reach higher levels of welfare. Considering the above-mentioned, I, herein, argue that this is due to a non-optimal institutional environment. Society has not learned how to consistently improve its own welfare yet.

This nonsense is further illustrated by the relationship that the majority of the people have with money. Money is perceived by the average citizen as the vehicle for unlimited consumption. Money becomes the master asset by providing the individual with the purchasing power to satisfy every want. However, the individual that just holds money also holds the right to live at the expense of what the remaining society is able to produce. And

⁵⁴ This behavior falls under the categories of either “social loafing” or “rent-seeking.”

it is not possible to improve overall welfare by providing every person with lots of money while producing nothing at all.

History has manufactured a number of ideological thoughts to deal with the scarcity problem. According to the available literature, these ideals move around two main streams: private property versus the communal property. Each one of them addresses the above-identified four dimensions of the scarcity problem in their own way. Each one of them gave rise to a staunch competition for recognition of a pretense of economic truth. However, the numerous propaganda supporting each one of these strands finds more support on social habits, manners, traditions, and local culture, than on logical economic thought toward improving overall welfare. None has solved important economic problems of society, such as homeless, famines, migrations, pollution, monopolies, and excessive consumption. These problems abide in both kinds of economic reality. A prejudice-free analysis of their mutual malfunctions is, therefore, mandatory.

We are seeking to understand how a specific institutional environment channels human behavior into an economic opportunistic mode adequate to deal with the scarcity problem. Consensually, the mutual existence of both private property and communal property is unavoidable in a developed society. Equation (34) shows that the interaction of formal and informal rules with the availability of human and material resources leads to a specific level of overall welfare. Particularly, overall welfare is maximized when unemployment is zero, expropriation actions of any kind are zero, scale economies are as big as possible, and the economic costs due to empty money production are the lowest possible. It is shown that, in this institutional environment, work efforts are optimized by both employers and employees. Outstandingly, this sets an institutional environment that overlaps with favoring both ideologies of private and communal property.

The literature is well aware of the importance of the institutional environment to address property rights issues and their interaction with economic efficiency. In this realm, and focusing on the property rights agenda, Papageorgiou & Turnbull (2005, p. 272) note that “*private property rights represent a complex set of institutional characteristics whose details often differ across countries and sometimes even across states or provinces within countries.*”⁵⁵ These authors, in their specific study on the legal detail of imposing time limits on ownership claims regarding both non-urban and urban land, conclude that “*there is simply no way to impose a uniform statute length in an economy without arbitrarily*

⁵⁵ See Papageorgiou, C., & Turnbull, G. K. (2005) “Economic development and property-rights: Time limits on land ownership.”

redistributing wealth from one sector to another” (Papageorgiou & Turnbull, 2005, p. 278). Hence, conflictual interests might emerge from the relationships set by a given institutional environment.

This reality pushes economic agents into a competitive mode, for, often, the gain of one side is the other side's loss. Finally, the authors outline that “*a key result from our analysis is that different types of property would most benefit from different statute lengths*” (Papageorgiou & Turnbull, 2005, p. 279), which suggests that solutions such as “one-size-fits-all” are not recommended. Finding consensual measures becomes a tremendous challenge for each economic agent perceives every institutional rule according to an individual perspective. Yet, virtuous economics is about improving overall welfare.

The literature entails many economic studies addressing the effects of the institutional environment on productivity, economic development, and resource misallocation. As we have seen above, the scope of their conclusions is necessarily confined to the circumstances provided by each country under analysis. Nonetheless, and regarding our specific focus on escaping from setting up an ideological-based framework, we can look at Ethiopia and Zimbabwe which are two countries that enable us to infer reasoned conclusions about a successful institutional environment to properly deal with the scarcity problem.

Ethiopia is a country where typical features of communal land tenure are codified in the law. This carts specific effects on the country’s easiness to expropriate and/or reallocate resources. Zimbabwe, in turn, is a country where a dual system of land tenure has been structured, and restructured, across time, using practices of both private and communal tenure with disparate results. Studying Zimbabwe’s transformations using the entitlements approach enables an increased understanding of “*how particular social groups intersect with aspects of local ecosystems and control rights to benefit streams that flow from the use of those ecosystems*” (O’Flaherty, 2003, p. 179). These countries provide valuable insights regarding the four dimensions of the scarcity problem and their interaction with the available institutional environment.⁵⁶

The first and foremost goal under analysis is to deal with the scarcity problem. We need to understand how the institutional environment set up by governments interacts with

⁵⁶ See, among many others, Gottlieb, C., & Grobovšek, J. (2019) “Communal land and agricultural productivity;” Richardson, C. J. (2005) “The loss of property rights and the collapse of Zimbabwe;” O’Flaherty, R. M. (2003) “The tragedy of property: ecology and land tenure in Southeastern Zimbabwe;” and Deininger, K., Jin, S., Adenew, B., Gebre-Selassie, S., & Nega, B. (2006) “Tenure security and land-related investment: Evidence from Ethiopia.”

the country's economic agents and provides a given economic outcome. The moorings between human ideals and the enacted institutional environment loom out.

Ethiopia has chosen to fight scarcity by adopting a legal strategy of stating in its Constitution that "*Ethiopian peasants have right to obtain land without payment*" (Gottlieb & Grobovšek, 2019, p. 11). Moreover, the country has chosen to enact a number of formal and informal regulations where the allocative control of the land is granted to either the state or the local community under a major principle of "use it or lose it." Renting land and hiring labor occur under a legal framework while land sales and mortgages are not allowed (Gottlieb & Grobovšek, 2019). Accordingly, this institutional environment severely hinders land transferability among the economic agents. Its efficacy to deal with the scarcity problem is, therefore, under inquiry.

The Ethiopian authorities sought to secure overall welfare by shielding against issues such as inequality and the myopic behavior that might emerge from a property-based economy where firms compete for monopolistic positions which hurt overall welfare. Moreover, the country's government was minimizing the number of persons in a situation of large insecurity regarding their livelihood. These options were taken under a given socio-economic reality in a country with few public policy instruments that could be of assistance to mitigate population needs.

One cannot disregard the circumstances that preside over every decision-maker. By 2001, the large majority of the country's population is characterized by facing significant rationing in the labor markets, a high dependency on agricultural income, and a huge level of illiteracy – the most educated person in a household had, on average, 5.18 years of schooling (Deininger et al, 2003). Accordingly, it cannot be expected that the country could quickly increase its overall productivity, for it was missing the material and human resources to do it.

Under such reality, it is interesting to note how individuals' opportunistic behavior is pushed to. The analysis encompasses the possibilities to work in the agricultural and non-agricultural sectors available to heterogeneous individuals, either as an employer or an employee. The authors identify several motivational lines.

First, combining the scarcity of labor in non-agricultural activities with a rule of law that demands the usufructuary of the land to "use it or lose it" presents a peculiar circumstance. This institutional environment leads low-skilled workers to choose to work in the agricultural sector. If the individual risks going to urban territories then that option severely jeopardizes his or her future. The uncertainty regards what to do, how to do it, and

how long can he or she be engaged in the non-agricultural activity. Hence, by staying in the non-urban territory, the individual knows that he or she is entitled to a little piece of land. The low-skilled individual is pushed to stay working in the agricultural sector, for it is the only way available to ensure subsistence.

Second, high-skilled land poor farmers face difficulties to reach higher levels of productivity. These people want to work on more land but that land is unavailable. On one hand, the land is already granted to low-skilled workers. On the other hand, low-skilled farmers are afraid of engaging in rental operations due to the risk of losing the right to hold the land. Finally, the transferability of land is allowed only to immediate family members and sharecrop instruments are not an option. Hence, the land available for rent is scarce and its rental cost inhibits the high-skilled worker's best efforts.

Third, the "use it or lose it" principle stimulates investments aimed at increasing tenure security rather than higher productivity. Individuals are pushed to be farmers and to stay in agricultural territories. Deininger et al (2003, p. 8) point out that "*the ability to use land was contingent on proof of permanent physical residence.*" Therefore, this stimulus acts as another barrier to increasing agricultural productivity.

Fourth, it is interesting to outline that, in this institutional environment, people do not have much incentive to devote time to educational activities. The population is induced to stay in the same territory, doing the same things, and with no meaningful prospects of future improvements. Consequently, illiteracy and unskilled workers are a burden that the country will bear for a long time.

These studies highlight the effects on Ethiopia's economy of lifting communal land tenure and increasing the transferability of land rights. Gottlieb & Grobovšek (2019) find that, when land is no longer subject to expropriation and reallocation, such reform is estimated to generate a GDP increase of 9% driven by a rise in non-agricultural output of 16% while agricultural output rises 3%. The reform also induces a decrease in agricultural employment by 25%. Real agricultural labor productivity rises 37% while real non-agricultural labor productivity falls 29%. These results reflect the permanence of high-skilled workers in the agricultural sector and the move of non-skilled workers from the agricultural sector to non-agricultural sectors. Nonetheless, and as the authors outline, accepting that the reform on property rights is implemented as suggested, the study says nothing about what happens to the unemployed that come out from the agricultural sector, how many of them find jobs and shelter in non-agricultural activities and territories, and how many unemployed people are left alone to starve. The study helps the government in

what concerns the scarcity problem productive dimension but is silent regarding the income distribution.

Indeed, in its quest to solve the scarcity problem, the government's dilemma mainly moves around increasing productivity and ensuring a proper distributive mechanism. It is worth noting that the adoption of a regime of communal property still demands rules defining who is entitled to the production. Moreover, the communal regime of property still requires governments to worry about both employers' and employees' know-how.

Following equations (15) and (34) guidelines, despite securing a full-employment economy, it is clear that this economic regime limits the endowment of output available for each worker to work with (i.e., A and B are smaller than can be) while still engaging in acts of expropriation, $\tau > 0$ through arbitrary land reallocation, and $\beta > 0$ as well, for the outcome of every householder member's work is not necessarily going to be for his or her own benefit. Moreover, people cannot freely choose to be an employer or an employee, and scale economies are compromised – i.e., α is not as big as possible, and individual work efforts are not optimized. Nonetheless, albeit inefficient, it constitutes a healthy effort from society to cooperate in improving overall living conditions.

Notwithstanding the attribution of a parcel of land to every Ethiopian without payment, the problem of scarcity remains unsolved due to the interactions that are naturally established between the available material and human resources. The truth is that overall welfare is not maximized under the property communal regime.

In a nutshell, looking at its strengths and weaknesses provides a higher sensibility toward the proper way to tweak these economies.

The major weaknesses of this institutional environment prevent it from being efficient to deal with the scarcity problem. First, as is shown by the literature, the regime of communal property, regardless of its many forms and idiosyncrasies, always faces a tremendous difficulty to join material and human resources where they can be best used at full potential. This issue is caused by the methodology of resource allocation and the individual's opportunistic behavior it triggers. Second, it is designed to evenly distribute heterogeneous material resources across heterogeneous individuals, with little regard for both potential and skills. Accordingly, productivity cannot be optimized. Third, it is focused on dividing the material resources through the population, when it is the distribution of the whole production that needs to be taken care of. And fourth, it is designed to distribute material resources according to a membership principle, being the access to those resources closed to the persons that may come from outside the community.

This weakness precludes the members of a community from benefiting from the know-how a stranger might bring.

However, the strengths of the communal regime need to be highlighted as well, for it regards some praiseworthy principles. First, everyone must be given equal opportunities. The regime tries to accomplish this goal by providing each person with a workable piece of land without payment. Second, the available resources are to be properly distributed across the entire population. In principle, no one is ever left behind. Third, there remains no piece of unmanaged land. The principle “use it or lose it” is designed to make sure that it is not enough to simply be entitled to the land. Finally, it has the merit of aiming at rewarding individuals according to their work efforts. Those who best work the land are the ones entitled to enjoy the fruits of their labor. Subsistence is aimed through work efforts. These strengths are under scrutiny when any kind of alternative is a possibility.

Zimbabwe is another peculiar country for having adopted the two property regimes simultaneously. The dualist system of land tenure was implemented in two different regions of the country. The communal property regime of land tenure was ruling the Southeastern Zimbabwe, in the former African Reserves, a territory now known as the Communal Area. The private property regime of land tenure, in turn, was implemented in the European-dominated “commercial” sector. The landscape was rigidly divided, and the separation between the regions provides us with an enhanced understanding of their mutual economic shortcomings.

In the late eighteenth century, a colonialist move loomed out from South African territory and moved north in search of fertile lands. This move settled a racial separation “*between lands held privately (by whites) and lands held under communal tenure (by Africans in the reserves)*” (O’Flaherty, 2003, p. 181) and installed a dual property regime in the Zimbabwean territory. The process of expropriation led the natives of the Zimbabwe territory to lose control over their land and much of their labor. Cumulatively, this process also allocates low-skilled workers into arid lands and high-skilled workers into fertile lands, setting up a historical background whose socio-economic consequences last till today.

The Republic of Zimbabwe was established in 1980 and “*through the 1980s, its annual real GDP growth averaged over 5 percent, and unlike other African countries, agricultural yields were large enough to allow the country to export grain to other countries*” (Richardson, 2005, p. 1). Moreover, “*the government also offered free education and relatively good access to medical care*” (Richardson, 2005, p. 1). This state

of affairs changed by the year 2000 when the government initiated a land reform policy that involved the expropriation of white-owned commercial farms to ostensibly redistribute this property to landless black natives (Richardson, 2005). The socio-economic context in which human relationships are intersecting with the use of material resources is of utmost importance for solving the scarcity problem.

This slight Zimbabwe's drawing of the beginning of the twenty-first century enables us to realize how the problem of scarcity necessarily requires a focus on both production and distribution. The literature on Zimbabwe evidences the interaction between the communal property regime and the private property regime in a remarkable way. Indeed, the African reserves managed under the communal property regime provide the private property commercial side of the country with the labor force they need to work the land. However, the output of the land is kept solely under property owners' control and its distribution disregards the needs of the people living in the African reserves. O'Flaherty (2003, p. 183) magnificently outlines the nature of this relationship between the two territories inside Zimbabwe in what concerns dealing with both human and material resources. The author's exposition is quite eloquent.

“The *ngosha* (*Quelea quelea*) is a small but very numerous granivorous bird that sweeps over the sky in flocks like small clouds and descends on grain fields to feast. The *ngosha* is at the same time a very tasty bird that is an important source of protein, especially for young children who trap them in fields with deadfalls (*mariya*). The *ngosha* is viewed by the industrial irrigators to the south as a pest. By day the birds feed on the vast acreages of monocropped wheat in the irrigation estates as well as the small grains (varieties of millet and sorghum) that are still grown in economically significant volumes in drought-prone areas like Gudyanga. By night they roost along the densely wooded parts of the Save River in the Communal Areas. Given their numbers and mobility, the most effective control is to spray them at night when they are inactive and congregated in large numbers. To protect export commodities, the Save River is sprayed with a highly toxic and persistent organophosphate. The next morning a bounty of deadly birds can be gathered and, as one resident intimated to me, are even sold to unsuspecting residents of nearby urban locations. Although local residents professed knowledge of the dangers of collecting sprayed birds it is questionable that all people, especially children, observed warnings posted by the spraying companies.”

The most outstanding conclusion the analyst can take out of this relationship is that the problem of scarcity is not easy to solve when overall welfare is the main goal to be reached. On one side, the supposedly modern market-oriented economy of the fertile commercial lands managed under a private property regime enables to reach higher levels of overall output. The focus on the increased productivity of these lands persuades white

farmers to act accordingly. The severe reduction of the number of available *ngosha*, regardless of its importance to feeding the people living in the Communal Area, constitutes evidence of the property owners' mindset. Moreover, we know that the output of this increased productivity is going to be distributed according to land owners' immediate interest alone. This process propels further similar actions of white farmers for they fear being overcome in their business by their competitors – the other white farmers producing the same crops. Ultimately, the socially healthy focus on productivity is smashed by a sick obsession with owning the entire production, while disrespecting humanity itself.

On the other side, the communal property regime dooms the entire population to live upon their own work efforts, according to the sparse knowledge that each person holds to deal with the available resources. Additionally, the rights to land are negotiated through social identity and either some members of the community or those who come from outside the community are excluded from local resources or are “*only able to gain secondary (nontransferable) rights to land through a full member of the resource holding-group – a husband or employer*” (O’Flaherty, 2003, p. 185). This practice is labeled by Michael O’Flaherty as a process of “social fences” and it does not differ much from the private property regime in the sense that it relies on local leaders to decide on human and material resource allocation. However, the focus on increasing productivity based on a network of economic activity is completely absent. Consequently, the population’s living conditions under such an economic regime are dependent upon their interaction with the economies ruled under the private property regime. As posed by O’Flaherty (2003, p.) the two realities “*worked not only within a single colonial economy but also within a unitary ecological and land-use system.*”

In Zimbabwe, during the period from 2000 to 2003, the government decided to remedy the historical expropriation of the fertile farmland made in the late eighteenth century to redistribute it back to the landless black people, overruling the private property economic regime. Suddenly, the land became the government’s property while plots of fertile land could be leased by those who wish to exploit it. The measure left thousands of employed black farm workers without a job (Richardson, 2005). Further negative consequences loom out: evicted farms dug up, sold or took the irrigation pipes; sophisticated farming equipment was looted, set on fire or stolen; and “*the people who replaced the commercial farmers lacked the knowledge of running a commercial farm, and many farms were simply left fallow or the wrong types of inputs were used*” (Richardson, 2005, p. 17). From 2000 to 2003, the Zimbabwean GDP lost 37% of its initial figure and

the Zimbabwean dollar lost more than 99% of its real exchange value. In 2003 inflation was running at 500% (Richardson, 2005). Although the country has faced a severe drought during this time, Craig J. Richardson concludes that the land reforms alone were the main responsible for the GDP decline while the “*rainfall played a minimal role in the GDP contraction*” (Richardson, 2005, p. 3). The government aimed at improving the living conditions of the people living in the Communal Area but did not succeed.

As the link between the regimes of common and private property was broken, further negative economic consequences spread out across the entire country. Due to the usual financial practice of lending on collateral, Zimbabwe’s banks did not grant loans to the new farmers for they did not hold the required land property, while the communal farmers’ yield also fell precipitously. Hence, agricultural total output plunged. Cumulatively, the industrial production of several sectors records a two digits reduction due to both missing raw materials coming from the agricultural sector and the huge devaluation of the Zimbabwean dollar that caused a huge increase in the importing price of the raw materials. The industrial sector saw seven hundred firms shutting down by late 2001 (Richardson, 2005). The problem of scarcity cannot be solved by breaking the moorings between the two property regimes.

The interdependence between the two populations is often escaping global heed because they both start assuming an intuitive “win-lose” relationship. Unfortunately, they do not realize ending up in a “lose-lose” relationship, which is grounded on negative opportunistic behavior.

Indeed, by following the principle of distributing all available material resources among the entire members of the community, the leaders of the communal property regime clearly perceived that each person’s win is another person’s loss. Ideally, the communal regime of property makes sure that everybody’s wins are equivalent. However, by letting each person alone, abandoned to his or her own skills and work effort, the community misses the opportunity to reach higher production levels. By shielding the community against foreign knowledge, the community further prevents future development. By precluding cooperation regarding productive efforts, the community induces its members to avoid committing much of their ingenuity and talents to find new solutions, for a portion of the outcomes of their efforts ends up being expropriated. Hence, the entire community rests engaging in a “lose-lose” situation.

The literature naturally labels the “tragedy of the commons” as the problem that emerges from the mismanagement of material resources due to the lack of individual

stimulus provided by this economic regime to actually take care of the existent material resources.

The private property regime, in turn, is grounded on the assumption of a “win-lose” relationship. This assumption starts in the production process when the owner of the land hires some employees to help him out laboring. The mindset of the employer is that he or she is entitled to the entire production and will give a portion of it to the employees. Hence, the gain of the employee is immediately seen as the employer’s loss. Additionally, the owner of the land perceives that he or she is engaging in a “win-lose” relationship with the other property owners, competing for the available resources, for individuals hold executive power only when they own the land. The output is sold to provide future purchasing power. Its selling price depends on the total available quantity of the produced good compared with its demand. For a given demand, the higher the productive capacity under control, the higher the price the owner can ask. Hence, the owners are spurred to increase the extension of their properties regardless of the intention of using those resources. By acting this way, each owner fosters the continuous decrease of the demand available for their products while increasing the number of unused resources. Again, the process leads the whole community into a “lose-lose” situation.

The “tragedy of private property” is a term used by R. Michael O’Flaherty to illustrate *“how a common resource can be squandered by the separation of a seamless ecosystem into discrete zones of management”* (O’Flaherty, 2003, p. 186).

Virtuous economics acknowledges that the way land is held has much more meaning than the way land is owned. One of the shortcomings of the many studies on the merits of property rights enforcement in a given country is the lack of measuring the poorest person of the population. Indeed, GDP measures tell nothing about how well the poorest person lives in that country. Zimbabwe shows that, rather sooner than later, actions are taken to fulfill such needs. And yet again, they are not always designed to ensure overall welfare. Therefore, economics has a long way to go to truly become virtuous.

The above exposition on Zimbabwe’s recent history allows us to infer a number of important conclusions on the weaknesses of the exclusive use of both communal and private property economic regimes to solve the scarcity problem. The private property regime has an awful distributive issue. First, not only do property owners aim at grabbing the entire production to themselves, raising β in equation (34) when it optimally must be close to zero, but property owners aim at owning the entire resources as well, posing a severe greed effect, which is boosted by the institutional environment. Second, when the

financial system grounds its economic activity on collateral, the financial system itself is gradually compromising its own survival by increasingly becoming dependent on a smaller number of owners of bigger properties who, at some moment in time, do not need credit anymore. The communal economic regime, in turn, is completely unable to increase the community's productivity, which is so needed to solve the scarcity problem. Remarkably, both regimes withdraw executive power from a large portion of the community members, making it impossible to reach optimal economic solutions.

Solving the scarcity problem requires the community to increase its productive capacity while using an adequate distributive system. The scarcity problem is, thus, an exercise of channeling opportunistic behavior into a positive mode. Equations (15) and (34) extol that this can only be accomplished when the private sector of the economy is ensuring a full-employment economy. Moreover, equations (28) and (34) show that price stability simply demands a tight control on the production of empty money, being mandatory that collateral cannot be used on any financial operation. As Zimbabwe's recent history outlines, rather than finance the largest property owners, the financial system is most needed to finance productive business ideas. In the former case, it becomes almost useless. In the latter situation, it will be ensuring its forever usefulness to the community. Finally, equations (15) and (34) evidence that human and material resources naturally find their best matches regardless of human interference if, and only if, people have executive power to choose between engaging in entrepreneurship or working for someone else, along with being free to move wherever their talents lead them to.

Table 9 displays the motto to successfully deal with the scarcity problem.

Designing an institutional environment that ensures everyone's welfare demands a higher level of cooperation among the entire community. This exposition enables us to conclude that the price mechanism can be employed by focusing on using the least expensive resource. Market and non-market players ⁵⁷ need to debate possible solutions to deal with the available resources. The guidelines of the green economy ⁵⁸ – reuse, reduce, recycle – provide a welcome contribution to resource-efficient allocation. In any case, consensual conclusions can only be reached if every person is no longer in pain or fearing

⁵⁷ Non-market players, such as activists, environmentalists, social entrepreneurs, and other non-governmental organizations which engage in hostile activities against specific economic agents or activities, have a role in defining the productive capacity of the economy and the way that the community exploits and manages the material resources. See Markman, G. D., Waldron, T. L., & Panagopoulos, A. (2016) "Organizational hostility: why and how nonmarket players compete with firms."

⁵⁸ See Nadim, A., Marom, S., & Lussier, R. N. (2016) "Sustainable innovation: design of an active adaptive organization."

for his or her survival. Otherwise, how can we expect to escape from either communal or private property regimes malfunctions? Equations (15) and (34) provide the institutional environment to be successful. Equations (1) and (28) pose that it is required to channel the economic agent's behavior into a strand of positive opportunism.

Table 9. The “motto” guidelines to deal with the scarcity problem.

Action to focus on...	Motto!
Scale economies...	Make it cheaper, not rare!
Exports...	Make it available!
Active cooperation...	Make it happen!

Source: Author's own creation

The games people play are of crucial importance to overall welfare. The rules of the game define how the game is played by the participants. With no surprise, the rules that are enacted under the communal or private property regimes do not ensure overall welfare.

Under the communal property regime, people play the economic game illustrated in Figure 4 by competing indirectly with each other to figure out who is able to extract the highest output from the resources at their disposal. But they do not engage in a coordinated modus operandi to reach higher productivity levels. The communal regime of property slashes the productive resources into discrete pieces and leaves them alone to thrive as they can. Hence, under this regime, the overall output that it is possible to reach falls short of its potential.

Under the private property regime, people play the economic game illustrated in Figure 4 by competing directly with each other to grab the biggest possible portion of the available output. Total output is divided between wages and profits. I include any form of rent as a constituent of aggregate profit because it is a source of income that does not come from work effort. Conversely, the profit that an entrepreneur collects from his or her economic activity is nothing more than a wage, just as long as it is the reward from the entrepreneur's work effort. Hence, employers and employees dispute the outcome of their joint production, and employers feel that by paying a higher wage they will be losing to the employee. Moreover, because they need to sell their products in order to succeed, they resort to a wide fan of strategies, usually named management techniques, that may provide them with a higher portion of the available market. Finally, because employees depend on their employment to survive, they too engage in practices that may allow them to secure

their job, regardless of the existence of unemployed people. Under the private-property economic regime, competition is magnified while coordinated efforts to reach higher levels of overall welfare are increasingly acquiring a tiny secondary role. However, because the entrepreneur engages in coordinated work efforts with his or her employees to reach higher levels of productivity, and because each firm specializes in producing a specific good while trusting that somebody else is producing the remaining goods in need, the private-property economic regime leads a fraction of society to clearly reach higher levels of welfare than what is possible under the communal property regime, as it was exemplified by the development of Zimbabwe's economy in the last forty years. However, it implicates that society still leaves someone unattended and starving to death.

It is worth mentioning that tribal behavior implies that a given society excludes individuals from membership, completely disregarding whatever the fate of the outsider might be. In the savanna, hyenas live in groups of a few dozens of individuals named clans. When a group of hyenas kills prey and another hyena, coming out from a different clan, approaches, the outsider is risking its life, for the clan will kill it at sight. Each clan defends a given territory and claims all its resources to itself. In this regard, I see many resemblances between both the communal and private property regimes' socioeconomic effects.

It is interesting to analyze what happens to Zimbabwe's society if people choose to embrace an ideal of building overall welfare. That means, making a resolute decision of adopting an institutional environment that leaves no one behind. It requires following the guidelines of equations (15), (28), and (34).

The first step is to enact a full-employment economy that must be secured by the private sector. Being aware that the people dwelling in the Communal Area are non-skilled workers, unprepared to be actively participating in advanced production processes, every owner in Zimbabwe will speak against the measure. They realize that the enormous quantity of available unskilled workers can only contribute to reducing both profits and productivity. And they are right! But these property owners are the ones who have the knowledge to develop productive units, are the ones who enjoy a worldwide distribution network for their products, and are the ones who know how to properly coordinate a workforce. The owners of the private-property sector do not want to destroy the returns they are securing in their current economic activity. Hence, the enactment of such measures spurs them to find solutions to employ the unemployed people in some still unexploited business sectors. Opportunities will be sought and taken according to every

individual best talent. And, as shown by equation (15), that applies to both employers and employees. By enacting a full-employment economy, the government pushes the private-property sector of the economy to come up with practical and viable solutions for the entire society. Of course that this is not easy to do because the measure redistributes executive power across society members. The role of the government is mainly to mediate the relationships between employers and employees and between private investors and the Communal Area leaders. It is worth noticing that the full-employment economy is already in place, but the output of the overall work efforts is not adequately distributed across society.

Enacting a full-employment economy secured by the private sector of the economy is the first step because it drives the mindset of the entire society into building overall welfare. Those who dwell in the Communal Area can choose between staying at home or moving to the private-property-dominated commercial region without fearing for their survival. Those who live in the private-property commercial region understand that they must put their ingenious at the service of the entire society by detecting new investment opportunities. The entire society is starting to focus on what are they good at and where new business opportunities might be.

The second step is to enact a private-property regime in the Communal Area. Assuming that the output of a productive unit rewards the laborers' work efforts is a notion already advocated by the communal property regime. However, the private-property regime allows for flexible resource allocation according to society's needs. This step can only be taken after the first one to enable investors to come up with new product ideas to deploy in the communal area while safeguarding the output's property and being welcomed by the residents.

The third step is to forbid the use of collateral in any credit operation. A financial operation is useful to increase overall welfare when it enables resource transfer between those who do not know how to optimize them to someone who knows best. Rather than creating money to secure a real-estate interest, banks might only create empty money to be a business partner for new business ideas. This means that anyone, with a viable project, will likely be able to deploy it, for it is not depending anymore on holding prior property. Accordingly, any person holding a good business idea can find a partnership among all available banks in the financial market. The more the financial operations focused on productivity improvement, the higher the pace of economic development.

The fourth step is to secure the infrastructures that made possible the rise of such an institutional environment. That means that the legal system must work properly, that education is extensively provided across the community to deliver a country-wide skillful workforce, that security forces, such as the police or the army, understand their contribution to maintaining a healthy society free from any sort of expropriation, and that the government (or the state) sells its services rather than making its people pay for them.

The final step is to raise a monetary authority that precludes new money creation for granting consumer credit and totally impedes it if inflation overcomes the 5% threshold.

These five steps take a lot of society's effort to be successful. The skeptic might point out that a wider understanding among those who hold executive power is not possible. They might be recognizing that communal leaders will be opposing such measures and might resort to a wide number of actions, including public protests or even violence. The skeptic might also recognize the potential opposition of the private property sector, for private owners do not wish to have a different life. Owners enjoy easy access to both resources and influence. The skeptic realizes that the looming of negative opportunistic behavior will be certain.

The cornerstone of a successful economy is to channel opportunistic behavior into a positive mode. Notwithstanding the expectable social difficulties brought out by bounded rationality, neither the communal leader nor the private property owner can stand up and prove that they are doing consistently well right now. Skepticism must be welcome for it enables society to better prepare for fruitful coordinated actions that take care of every person. Hence, there is room to reach an understanding. Of course, that can only be possible if people actually choose to build and secure overall welfare.

In this new institutional environment, society's total output will be higher than the current one. In a finite amount of time, following the same process illustrated in Figure 4, society will reach levels of individual welfare that are far superior to the ones enjoyed by society's wealthiest right now. Society is embracing a "win-win" situation. Regarding the way our current institutional environments deal with the scarcity problem, it stays clear why they are ineffective, why they are labeled by the literature as "tragedies," and how they can be improved. Yet, it takes a set of measures that must be tweaked according to circumstances.

5) How to eradicate pollution?

Pollution can be defined as the consistent negative consequence for overall welfare due to environmental changes caused by human activity. Hence, conceptually, virtuous economics must pose that if human activity is going on, then some sort of opportunism is driving human behavior. Accordingly, regardless of its many types (air, water, soil, noise, light, thermal, and radioactive), pollution constitutes a payoff coming out of human choices.

The problem of pollution is very serious because of its consistency. In all life's material dimensions, the new generations are facing increasingly poor living conditions due to prior actions. These actions can be either the outcome of individual choices or the result of collective engagement pursuing a specific higher goal. We are supposed to be rational individuals who can analyze complex problems and figure out optimal solutions. Since we aim at ensuring overall welfare, we can safely conclude that we did not succeed yet. Therefore, it is mandatory to inquire about the possible reasons that lead humanity to consistently make these specific nonoptimal choices.

The virtuous economics approach to solving the pollution problem begins by identifying the sources of every human behavior of either individual or collective nature. The analysis is, therefore, split into four specific strands of the problem: its causes, its theoretical framework, the type of induced individual behavior, and the type of behavior that society aims for. This approach seeks insights on why consistent negative behavior has been produced throughout generations, despite the evil brought within.

The causes of pollution can be categorized into five categories: pollution caused by incompetent production of material goods; pollution caused by careless production of material goods; excessive production of material goods; evil production of material goods – i.e., when individuals are fully aware of the damages they are causing; and pollution caused by accidental events. Each of these categories presents different levels of difficulty in finding its solution. Each requires a full understanding of the human behavior that lies behind it.

Conceptually, the problem of pollution poses an issue regarding the potential output that society has at its disposal. In this sense, the problems of pollution and productivity are both crucial to overall welfare, but each states a relationship of inverse nature. That is, more productivity contributes positively to the overall welfare and, conversely, more pollution decreases it. Ultimately, pollution leads to a general malaise. Focusing on equation (34), the effects of productivity and pollution are illustrated by affecting the

potential output, A , available to society and, accordingly, it has a direct impact on overall welfare. It is thus mandatory to analyze how circumstances and executive power combine to deliver a specific opportunistic behavior.

We begin by looking at each category of the causes of pollution.

Incompetent production gives rise to pollution when individuals do not know how to produce a given good without producing a negative externality to society. This happens when, for instance, a building is made using heavy noisy machines near a place that requires silence and peace, like a school or a hospital; when a paint factory dumps toxic production waste into rivers or soil; and so on. Examples are countless.

The circumstances faced by the decision-maker who pollutes involve, at least, two crucial aspects: the available technology and the reason to produce. The reason to produce enfold the survival of the producer, who needs to sell its product to be able to buy the wants in need, and the interest of the buyer, who wishes to consume. Often, indirectly, the whole society benefits from the endeavor as well, and it constitutes another reason to produce. The available technology, in turn, depends upon a wide network of social development such as knowledge sharing, education, and local infrastructures. The bottom line is that the individual decision-maker depends upon society's collective organization, and we cannot disconnect individual behavior from the institutional environment.

A focus on problem-solving coordinated efforts to find specific solutions suitable to the circumstances at hand is, therefore, mandatory. At a precise moment in time, technology is given. Hence, addressing the problem of building a hotel near a school is something that good common sense can solve when all the parties at stake are called to cooperate: the buyer, the seller, the school representatives, and the community representatives – because the hotel carts the opportunity for foreigners to spend some time in that location and allows the remaining community to increase its sales of products and services. The focus on the immediate solutions given the available resources still requires both individual and collective comprehensiveness.

If we accept that each individual is linearly maximizing his or her utility, U , which depends positively on both consumption, c , and leisure, l , such as $U(c, l)$, then we realize that perceived payoffs are at stake when productivity and pollution collide. In the case of the hotel to be built near the hospital, for the benefit of the entire society but at the cost of the well-being of patients and health professionals during the construction period, conflictual solutions emerge from different utility perceptions. The builder, S , who sells the construction service, and the buyer, B , who settles a hotel unit from which he or she

expects to profit a lot, are the ones whose survival depends on the endeavor. Both of them cannot enjoy a way of living if the enterprise does not materialize. They are aiming at the highest payoff and, simultaneously, they are the ones who suffer the most case the hotel is not built. The indirect community, C , which benefits from the hotel's functioning in the city, is not losing so much if the hotel is not built. They already have a way of living, so they are only risking losing the opportunity of a welfare improvement. Finally, those who are living outside the city, O , might enjoy other locations to visit and are the ones who care the least about what might be decided by local people to solve this pollution problem. On the costs side, the hospital residents, H , both patients and health professionals, endure a significant welfare decrease during the hotel's construction period. Hence, the individual interests can be aligned according to the payoffs perceived by each economic agent, K .

We use the above notation to identify the positive and negative payoffs in the case of the construction of the hotel.

$$U_K(c,l) > 0: U_S > U_B > U_C > U_O > 0;$$

$$U_K(c,l) < 0: U_H < U_C < U_O < 0.$$

The utility's rankings change in case construction is not allowed.

$$U_K(c,l) > 0: \text{None of the economic agents can enjoy a positive payoff};$$

$$U_K(c,l) < 0: U_S < U_B < U_C < U_O < 0.$$

Notice that the remaining local community (other than seller and buyer) and the foreigner who might visit the city can suffer a negative payoff if they eventually happen to get sick and become a hospital resident during the construction period.

The rankings' construction relies on a few assumptions. First, it assumes that the seller of the construction service depends on it for survival. Second, it assumes that the buyer decides to invest in a new hotel while picking this option among a number of investment alternatives. Third, the eventual gain perceived by the remaining community coming from the construction of the hotel is smaller compared with the expected gains of both builders and owners of the investment because these people already have their own way of living. Fourth, the gain provided to foreigners depends upon the probability of visiting this city, which reduces their perception of increasing welfare due to this particular hotel construction. Fifth, hospital patients are considered to be randomly picked across the entire society. Sixth, and finally, decisions are taken according to a long-term perspective that extends beyond the moment of finishing building the hotel. If these assumptions are correct, some insights for solving the puzzling pollution problem loom out.

If we assign both the positive and negative signs to the corresponding payoff, we can detail individual utility and conclude on the likelihood of each person's decision towards either supporting the endeavor or speaking against it.

We analyze the case where the hotel is going to be built.

In this instance, the builder, which is the seller of the construction project, is perceiving a significantly big and positive payoff which, in monetary terms, can be reckoned as the firm's profit plus its future ability to secure a way of living to the people it employs. People who work at the builder firm is disregarding the negative payoff coming from the slight possibility of ending up needing the hospital services as a patient during the construction period. Hence, clearly, because their survival depends on it, these people do not care much about the pollution they are causing. On the other hand, the buyer, who runs the investment project, is focused on the future profitability he or she aims for and, similarly, is also worried about self-future survival. Cumulatively, this gain is quite superior to the eventual loss coming from the probability of being a hospital patient during the construction period. Hence, under an institutional environment that assigns full executive power to buyer and seller only, and just as long as the producer delivers a consumer want, the existence of polluting events is certain.

At this stage, it is, therefore, required to conclude on the level of engagement of the remaining community towards this problem. The residents of the city benefit indirectly from the hotel construction, for it will enable foreigners to come and increases the potential to make future sales. However, they too attribute a possibility of ending up ill during the construction period. Just as long as the positive utility is perceived to be higher than the negative one, the remaining local community speaks for the hotel construction. However, they are almost indifferent. The perceived benefits do not change their welfare perception, for gains and losses do not fall immediately into their pockets.

Foreigners do not really care about the kind of decisions local citizens are taking. They welcome the hotel construction but did not care much about either the advantages or the disadvantages it might bring to them. It is fair to suppose that foreigners are indifferent to local citizens' decisions because they probably do not sense the event as an opportunity. Otherwise, in utility terms, at the most, they will perceive the event as the local community does.

Finally, the hospital residents are the ones who will surely speak against the endeavor unless the perceived future benefits overcome the cost of enduring so much noise during the construction time. Hence, the usual evolution of economic events with this

typology depends on the executive power of buyers, sellers, and those who are negatively affected by the polluting endeavor.

The above exposition puts into context the roots of opportunistic behavior that gives rise to pollution events. Firstly, the main driver for polluting events is the seller's and buyer's survival dependence on the production and consumption of a given product. Secondly, the involvement of third parties depends on both the perception of the negative effects that directly come from the polluting event and the executive power they have to prevent it from taking place. Thirdly, it depends on being able to improve technology in such a way that production can be accomplished without causing negative externalities. Finally, under a given technology, polluting effects might be overcome by engaging in cooperative efforts to eradicate or, at least, minimize the negative externality.

For instance, considering the example given above, both buyer and seller might support the temporary move of the hospital facility to a new location during the construction period. Nonetheless, usually, buyer and seller, who enjoy immediate gains, end up engaging in a “win-lose” game against the third party, who suffers immediate losses. While the negative externality remains inconspicuous, the remaining society is not called to play. However, under our current institutional environment, and as long as the negative perception towards the externality grows in the public opinion, the number of third-party members gets bigger, but only to participate in the “win-lose” game, aiming at preventing the endeavor. A “win-win” mindset is still almost completely absent from society.

It is worth noting that, to the seller, the cost of quitting engaging in the polluting event clearly supersedes the expected gain in absolute terms. In the first place, the pollution problem is posed because sellers and buyers not only want to win but want to survive as well. Accordingly, they both identify an opportunity to increase their mutual welfare and perform an agreement. Simultaneously, a cost to other society members stems from this agreement. If society tries to raise the buyer's and seller's perception of this cost through the enactment of some sort of fines and penalties, then this effort constitutes an additional cost to the process. Moreover, for the buyer and seller to quit the endeavor it is necessary that the expected negative value of the fine or penalty overcomes the expected gain of the operation. So, by following the “win-lose” competitive mindset, the question is how high the fine or penalty must be to prevent buyer and seller from engaging in a polluting endeavor when their survival is at stake? Furthermore, society needs to consider that its members need to be a seller and a buyer every day. Hence, herein, I argue that,

contrariwise to intuition, rather than on cost analysis, the pollution problem has its roots in the absence of a reward-based system.

Opportunism is at the core of economic behavior, and it can be of negative or positive nature. We have just scratched the surface of the causes of polluting events and slightly touched on the effect of the institutional environment on the economic agents' choices. We still need to go deeper to grow an increased feeling of what actually guides human behavior. Society has two different possibilities to induce the desired behavior: 1) a penalty-based system; and 2) a reward-based system. By analyzing the two possibilities we will conclude about their effects on getting the desired behavior.

We are now in a position to evaluate the kind of institutional environment society usually chooses to abide by. Consider the example of an entrepreneur who owns a paint factory that dumps its waste into a river. Furthermore, accept that the factory is the entrepreneur's way of living – i.e., from which he or she depends to survive. Finally, if the entrepreneur is caught dumping waste into the river, he or she will be facing a fine. In this instance, the reward of the entrepreneur is not secured, for the individual risks being unable to sell the product at a higher price if he bears all the costs inherent to avoid pollution. Moreover, the individual will be able to sell more paint if he lowers its price compared to immediate competition. If the demand curve for paint is elastic, then the producer is further stimulated to pollute the river. Under these usual conditions, how can the polluter be spurred to safely avoid polluting? Methodologically, this institutional environment clearly sets up an aggravated penalty-based system that does not care to safeguard the reward in the first place.

To tweak this institutional environment into a reward-based system, we need to first provide rewards to every society member. Afterward, we need to consistently reduce the future prize over time in case of default.

The initiatory step is accomplished by ensuring a way of living for everybody. By ensuring a permanent way of living for every person, society is acquiring the ability to reduce it when suitable. That, of course, requires enacting a full-employment economy, where everyone enjoys the outcome of the individual's work effort while applying a penalty over the polluter in the format of a percentage of the individual's future income until the damage is fully repaired.

Note that, by directly applying equation (15) we can conclude that the individual needs to be free to choose between being an employer or an employee, according to the highest perceived payoff. The polluter's reward, coming out from securing a way of living,

needs to be consistently reduced regardless of the economic activity he chooses to engage in after being caught in the flagrant offense. Within this framework, the individual will always be avoiding any polluting activity when he foresees a future income decrease while holding a tangible alternative. Society will be securing a reward-based system whose reliability rests more on individual control rather than on authoritarian measures.

It is worth analyzing how the remaining causes of pollution differ from incompetent production. In the first instance, there is no reason to believe that the pollution caused by careless production differs much from the pollution caused by incompetent production. Moreover, excessive production seems to embrace the same genesis – i.e., it serves the purpose of surviving.⁵⁹ The root of evil pollution is not much different either. It is, therefore, mandatory to outline that a penalty-based system is the main cause of the existence of pollution on a consistent basis.

Pollution depends on both the reason for production and the available technology. Under a reward-based system, society still aims at higher levels of consumption, so there is no reason to believe that a reward-based system changes society's productive efforts. Moreover, society increases its understanding of the benefits brought by the available technology and looks forward to finding ways of spreading it as much as possible. The relationship between risk and reward is extended over time and does not limit itself to the short-term. Hence, technological improvements are fostered and their use is likely to be prompt and judicious.

Contrariwise, a penalty-based system holds the disclosure of new technology, for its use is dependent on bringing an immediate advantage to the discoverer.⁶⁰ The individual acts like this because he or she cannot foresee a gain by acting differently. Hence, under a penalty-based system, a person might find a way to avoid pollution but the individual does not put those actions into practice until a gain is clearly perceived – i.e., the positive actions needed by society do not occur unless there is an immediate perceived reward in doing so. And, as seen above, that can only be accomplished under an institutional environment that rests on a reward-based system.

Finally, society must deal with the pollution coming from accidental production such as a massive oil spill caused by a ruptured pipeline somewhere in the world or by a vessel

⁵⁹ It is important to highlight that even when entrepreneurs are driven by greed they might be guided by survival needs as well for, under our current institutional environment, the astute entrepreneur understands that the person holding more assets is the one holding executive power.

⁶⁰ In this vein, it is worth being aware of the work of Gould & Gruber (1996, p. 325) who pose that “*it has been shown that, under some conditions, a monopoly may accumulate patents to preserve its power by allowing the patents to ‘sleep’ so as to deter entry into an industry.*”

cracked in the storm. However, it is not difficult to frame these events under the prior categories of the causes of pollution and subject to a similar individual analysis.

Ultimately, pollution is caused by the desperate efforts of entrepreneurs looking for survival. It is impossible to separate human behavior from the institutional environment that drives it. By defining a consistent reward from which offenders can be deprived, a full-employment economy enables economic agents to engage in individual actions to avoid pollution, focused on the gain at reach, and without fearing losing anything. Under an enacted full-employment economy, the reward-based system is put in place and allows individual action to take care of collective interests.

6) How to eradicate unemployment?

Unemployment is usually defined as the number of people who are actively seeking a job but are unable to find work. Yet, this definition does not comprehend those who can work but do not want to, either because they do not need it or because they have lost hope in a better future. The former is surely expropriating the product of somebody's work effort, while the latter can contribute to reducing other people's work efforts but is not doing it. Both present an accrued cost to the overall welfare and are a non-optimal solution. Hence, virtuous economics defines unemployment as the number of persons who can work but are not doing anything useful.

This definition is important because it escapes the traditional standard of calculating the unemployment rate, which usually requires dividing the number of people looking for a job by the number of persons in the labor force. Traditionally, only those who are actively looking for a job are the ones that enter the numerator. The traditional approach forgets about a fraction of society's total productive potential. Hence, virtuous economics focuses on a more comprehensive definition of unemployment.

Notwithstanding the fact that this approach poses an accrued difficulty in getting data to identify unemployment, we need to center our attention on the causes of unemployment and the process of its development before being able to identify how to accurately measure it. Virtuous economics is, therefore, concerned about eradicating unemployment while ensuring optimal productive efforts.

Since unemployment is the outcome of human interactions, virtuous economics needs to consider how opportunistic behavior is driven by the institutional environment. Accordingly, to identify the guidelines to solve the unemployment problem is necessary to

identify its causes, its theoretical framework, the behavior induced by the institutional environment, and the behavior desired by society.

Unemployed people – i.e., the number of persons who can work but are not doing anything useful – can, accordingly, be split into two different categories: 1) those who truly want to work; and 2) those who do not want to work at all. By splitting unemployment into these two categories the economist is able to identify a number of different and unrelated causes of the unemployment figures.

We begin by inquiring about the causes of unemployment of those who are unemployed but truly want to find a job.

Classical economic theory poses that firms decide how to use inputs according to their price in the market. By this token, firms decide between using capital or labor according to the marginal return obtained from using one input unit. This necessarily means that firms must feel free to fire any employee at sight and replace it with a machine when the entrepreneur identifies a profitable opportunity. In this instance, theoretically, the unemployment of those who truly want to find a job is caused by technological advances coupled with the entrepreneurs' executive power to fire at will.

However, the reduction of the purchasing power of a number of society's members leads to a reduction in its aggregate consumption. Consequently, other firms will face a decrease in the quantities demanded by the market and that leads them to fire expendable employees due to reducing production. We can, therefore, conclude that, under an institutional environment where entrepreneurs hold the executive power to fire employees at will, the unemployment surge propels further unemployment.

Following this late worry, in 1936, John Maynard Keynes poses that the full-employment economy is, itself, the cause of the unemployment surge.⁶¹ The explanation lies in basic human precautionary behavior. The author highlights the effect of consumers' behavior on unemployment figures. Specifically, regarding the relationship between income and consumption, the author poses that "*we take it as a fundamental psychological rule of modern community that, when its real income is increased, it will not increase its consumption by an equal absolute amount, so that a greater absolute amount must be saved*" (Keynes, 1936, p. 86). Hence, when reaching a full-employment reality, the economy reduces its consumption activity and induces an unemployment surge, leading to

⁶¹ See Keynes, J. M. (1936) "The general theory of employment, interest, and money." Following the empirical data at hand and sheer common sense, the author supports that public investment is required to ground the economy when the private sector is unable to do it due to the fact that unemployment spurs further unemployment.

a fall in aggregate demand. Accordingly, the combination of the entrepreneurs' executive power to fire their employees at will and the instability of aggregate consumption patterns is a cause of unemployment.

Sometimes, in an attempt to solve this particular latter problem, the institutional environment is set in order to preclude employers from firing employees at will. However, this leads to a behavioral chain reaction whose consequences will be considered after identifying the full range of unemployment causes.

So far, the analysis only covers the fraction of those who are skillful workers actively seeking a job. However, another fraction of those who are actively seeking a job are people who seek the first work opportunity or are tired of what they have been doing and simply want to move to a different professional activity. This fraction of unemployed people is mainly composed of unskilled workers that need to acquire skills. This distinction acquires great importance because skilled and unskilled workers are necessarily facing different work opportunities.

The literature covers the importance of small firms and self-employment as a solution to unemployment.⁶² According to the "OECD SME and Entrepreneurship Outlook 2019" (2019, p. 4), "*one out of three people work in a micro firm, two out of three in an SME,*" which outlines the relevance of small and medium enterprises to increase the employment levels.

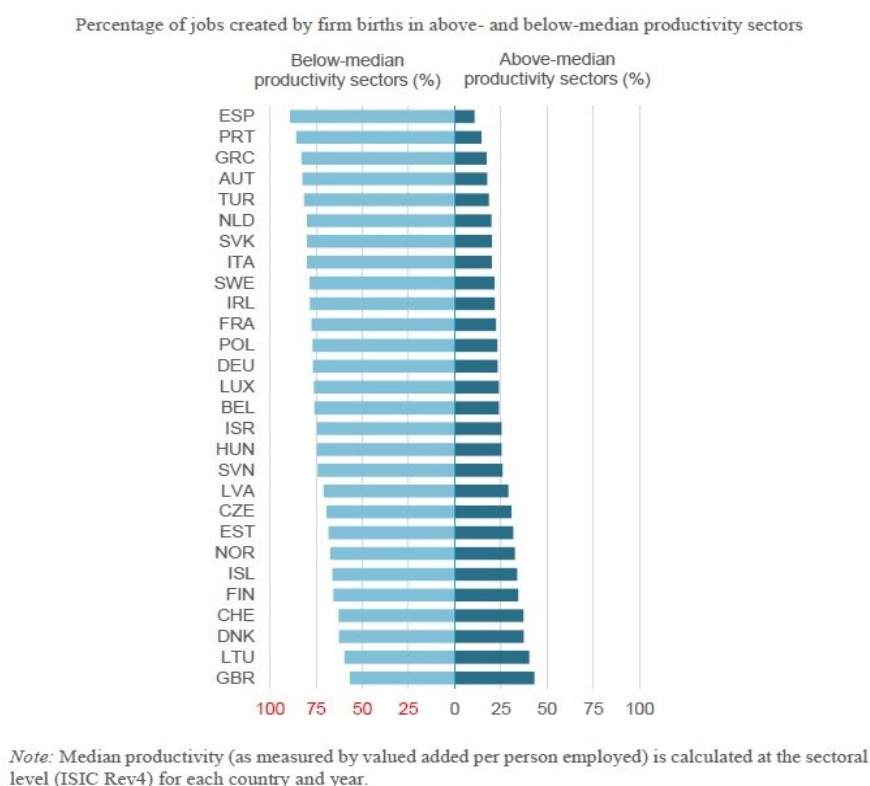
Economically, this fact does not constitute cause for concern unless it means a loss in productivity. Figure 15 emphasizes the extension to where the creation of new jobs in low-productivity sectors strongly overcomes the amount of new employment creation in high-productivity sectors. The data was computed by OECD Structural and Demographic Business Statistics and refers to the period between 2002 and 2017. This data highly demonstrates that, currently, even in OECD countries, the creation of new jobs mostly focuses on low productivity sectors – i.e., where it is harder to reach significant economies of scale. In this regard, OECD SME and Entrepreneurship Outlook 2019 (p. 6) poses that "*SMEs are driving job growth, but need higher investment in skills, innovation, and tech to boost wages and productivity.*" There is no doubt that small firms and self-employment

⁶² See, among many others, Shoar, A. (2010) "The divide between subsistence and transformational entrepreneurship;" Gollin, D. (2008) "Nobody's business but my own: Self employment and small enterprise in economic development;" Viswanathan, M., Echambadi, R., Venugopal, S., & Sridharan, S. (2014) "Subsistence entrepreneurship, value creation, and community exchange systems: A social capital explanation;" Sridhar, M., Coker, A., & Achi, C. (2018) "Pollution from small and medium size enterprises: less understood and neglected sources in Nigerian environment;" and OECD (2019) "OECD SME and entrepreneurship outlook 2019."

constitute a remedy against the problem of unemployment, but it is a weak solution for it hinders productivity and does not provide a cure.

We can, therefore, conclude that the choice of an economic path of low productivity requires inquiry. Unskilled workers, just like anybody else, have to deal with the circumstances and executive power at hand to figure out the actions that enable them to satiate their needs. Moreover, if it is of overall interest and concern that people be productive, then those who possess know-how must disclose it to the remaining society. Accordingly, if the number of unskilled workers persists worldwide, even in developed countries, it is highly likely that the reasons behind such a socio-economic reality lie on institutional grounds. There must be a source of opportunistic behavior that spurs those who possess the know-how to keep it to themselves or a lack of efficacy in training efforts and know-how disclosure that does not allow unskilled workers to become skillful ones. Or both. Nevertheless, it is a matter requiring further examination.

Figure 15. OECD new firms' job creation by productivity sectors



Source: OECD Structural and Demographics Business Statistics Database, Sep 2018.

Within the realm of the unemployment problem, and to nobody's surprise, voluntary engagement in low productivity economic activities often ends up in failure, leading a

portion of the population to consistently live under a small wage reality while intermittently unemployed.⁶³ It remains clear that a fraction of unskilled workers who choose to create a new firm are not conveniently prepared to do it, whether this may regard professional or personal competencies. The individual is aware of this lack of know-how, and according to equation (15), it is plain that the individual risks engaging in a self-employment endeavor because he or she does not have a higher wage alternative. Hence, regarding the unskilled workers, the problem of unemployment transcends the individual focus to embrace two separate socio-economic parameters: the society's wider inability for self-employment and the insufficient job supply.

It is now possible to address a long list of causes for both the individual lack of preparation for embracing transformational entrepreneurship (the one that leads to scale economies) and the circumstances that induce firms to squeeze the offer for new job opportunities, crossing fields such as education, training, culture, regulatory framework, or the economy's infrastructures. We are resting at the institutional level of the economy and realizing that it conditions human behavior and overall welfare. However, any cause that is rooted in socio-economic behavior necessarily originated in a human choice. Hence, although likely serving useful insights, this long list of causes can hardly provide the right path to solve the unemployment problem.

Economics is concerned with the positive contribution of productivity to enhance overall welfare. Economically, unemployment is exactly the same as unproductive employment. By this token, the solution to unemployment must lie in finding a way to engage overall society in consistent highly productive efforts. This can scarcely be accomplished by simply identifying some reasons why we are not engaging in optimal productivity, but it provides some insights on how to pave the way.

Herein, we are addressing the causes of unemployment by framing their theoretic framework and aiming at finding out the human behavior that is induced by the institutional environment. When we are reasoning under an "if-then" approach trying to avoid the negative consequence identified on "then," we tend to focus on eliminating the cause in order to avoid the negative consequence. But, since humans act opportunistically, there is a positive outcome perceived by the individual that fosters a given behavior. Every time an employer decides to put another human being in an unproductive situation there

⁶³ In this regard, it is of particular interest the paper of Antoinette Schoar (2010) "The divide between subsistence and transformational entrepreneurship."

must be because the employer expects to reach a positive outcome from the measure. And this positive outcome must enter our equations.

It is, therefore, required to previously identify the flow of positive outcomes that are supporting specific human actions. When the employer fires an employee, he or she is always expecting to score a gain. For instance, when the demand for the firm's product decreases, the manager fires expendable employees to secure the firm's profit margins. Similarly, when the employee rests working for the capital holder, there must be because he expects to earn a higher payoff than the best-foreseen alternative (i.e., exactly as outlined by equation (15) through the perceived values of τ and β). Finally, the capital holder and the homeless, who deny to actively contribute to productive efforts, are retrieving the highest returns they perceive to be affordable, acting according to the perceived circumstances and the held executive power.

The socio-economic process that structures a consistent flow of unproductive choices is what needs to be fully understood to solve the unemployment problem. Virtuous economics seeks to understand how the aggregate individual behavior gives rise to an overall welfare improvement. Thus, we need to understand why aggregate behavior is not leading to an overall well-being improvement.

Starting with the employers' necessity to fire at will, we must acknowledge that they are trying to avoid a negative value regarding the employees' productivity. The employer is the first assessor of the situation and acts accordingly. We welcome the employers' decision for it decisively contributes to allocating human resources where they are most needed – i.e., in profitable firms. Hence, if every firm fires at will their employees, they will be actively contributing to efficient resource allocation. Accordingly, solving the unemployment problem does not require preventing firms from firing their employees whenever considered suitable. The problem of unemployment lies in society's inability to immediately employ the people who got fired. Society is still unable to avoid the unproductive allocation of human resources.

It is worth outlining that both technological advances and decreases in the firm's product demand severely stress employers to fire some employees. Technological advances mean the ability to increase scale economies – i.e., the society's capacity to deliver more goods with the same or fewer work efforts. By being able to sell their products at lower prices, a firm can gain control over the entire market, pressing inefficient firms to fire their employees and/or go bankrupt.⁶⁴ A resembling effect occurs when the

⁶⁴ This process is a trigger for the efficient allocation of human resources and was called by Joseph A. Schumpeter of "creative destruction." However, the efficient allocation of human resources begins at the

firm faces a decrease in the demand for its product. However, optimal productive levels depend on the employers' heterogeneity and are often reached by working less (see Figure 7). If society enables firms to fire expendable workers while securing the employment of those resources where they can contribute to reducing other person's working time, then a positive productive leap is obtained. The identified causes of unemployed that are, indeed, an economic evil are, accordingly, the inability of self-employment and the insufficient job supply, for these are the ones that preclude just-unemployed people from immediately engaging in productive economic activity.

Again, we are delving into the institutional domain. The inability of self-employment carts a number of reasons being one of them the entrepreneur's easiness to access financial resources. In turn, insufficient job supply rests on the assumption that those firms who still have not faced the decrease in their market demand can keep enjoying the same profit levels without being affected by what happens in the remaining society. The economist knows that this is not true but the manager does not. Often, none of them perceive the danger, and society loses the opportunity to engage in a positive mode and rather ends up in the tortuous negativity of an economic crisis. Hence, the employer's lack of perception of falling aggregate demand is the subtle primary cause of society's failure to reallocate human resources where they can be most useful to increase overall welfare.

This latter problem is likely to be worse according to the number of monopolies in the market. Notice that the monopolist is entitled to a significant profit margin because he or she understands and controls two crucial aspects of market functioning. First, the entrepreneur knows that the selling price is maximized up to the level allowed by the product's aggregate demand. And second, profit is bigger when it is possible to control production costs. Hence, the monopolist is aware that he cannot do much about the selling price, but he is able to knock out competition by buying raw materials cheaper than other firms are able to do in the market. In this regard, the monopolist takes further advantage of the pricing mechanism and manages to press lower the asking prices of raw materials sold by suppliers. As always, circumstances and executive power define human behavior. In this institutional context, no monopolist accepts to receive in his or her enterprise employees that are coming from bankrupted firms, because that means giving up on the entirety of the monopolist's profit.

moment of the first employer's fire order and only ends up when the employee consistently engages in a productive activity.

Indeed, if monopolists accept to embody the unemployed in a productive activity in their firms, then a behavioral chain reaction is triggered. First, the monopolist might accept to employ the unemployed people, providing them with productive activity, while dividing the prior total amount of wages paid by the new total number of employees. In this first instance, the monopolist's employees will be paying for securing a full-employment reality. However, in a second instance, due to employees' heterogeneity and given the availability of huge profits in the market, a new firm might establish itself in the market while trying to capture the monopolist's best employees. Anticipating this situation, the monopolist is forced to hold their best employees by rewarding them with higher wages. The monopolist is doing so for as much as the amount of wage he or she is earning from the economic activity is higher than working for someone else, as advocated by equation (15). Given their executive power, just like pirate "A" can hardly give up its 98% loot, so the monopolists do not accept to incorporate the unemployed in their firms' workforce as well.

Perception of the circumstances and executive power always combine to define a given human behavior. That is why wrong perceptions give rise to huge mistakes. As posed previously, the reduction of the market's aggregate demand propels further unemployment, under a negative process that fuels itself. Virtuous economics recognizes that economic crises are the simple outcome of society being unable to use the available resources in productive activities. It remains clear that this incapacity holds a non-optimal solution.

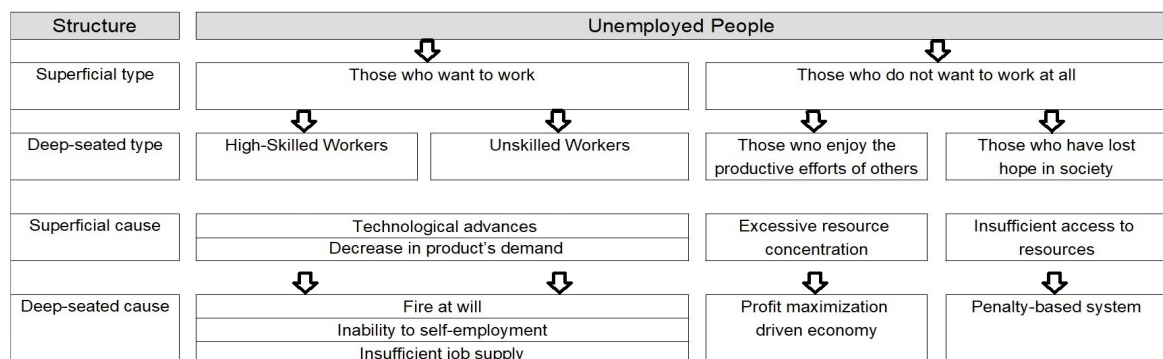
Under our current institutional environment, human behavior is induced towards a negative mode for a number of reasons. First, entrepreneurs do not want to give up on their big slices of the current pie, but the more they compete for it, the smaller is the available pie to the entire society. Second, employees do not accept being fired at will, but their behavior contributes to keeping human resources in unproductive activities – the more they do it, the smaller the available pie to society. Third, investors do not want to work at all because they live at the expense of both employers' and employees' work efforts – they depend on grabbing a portion of the profit margin, and the more they do it, the smaller the available pie to society. And fourth, homeless people choose not to try anymore, despite their usefulness to reduce the total amount of average working hours per person which is needed to increase productivity – once again, the more they act like this, the smaller the available pie to society. The non-optimal solution proves itself because, under an institutional environment where full employment is not a concern, society is able to reduce

overall work efforts while using all available resources but, perhaps unwittingly, chooses not to do it. The institutional environment engages society in a negative path.

Figure 16 displays the structure of unemployment according to the unemployed people's different types and causes. The figure is silent about the opportunistic behaviors that trigger the causes of unemployment and is also silent on the features of the institutional environment that solve the problem.

We are currently living under a profit maximization-driven economy that fosters resource concentration. Managers confuse profit with economic efficiency and do not have a clue about how overall welfare is built. That is why there is a worldwide prevalence of the idea that competition among firms secures economic development. In fact, as is evidenced by equations (28) and (34), economic development is secured by reaching scale economies, enabling to increase in the number of goods and services society can enjoy while decreasing human work efforts. Each firm must produce far more surpluses than they need in order to exchange those surpluses with the surpluses of others. And we need to get everybody involved to do it with minimal effort. Some firms specialize in producing food, others in producing clothes, others in producing shelter, and so on. Each firm outside the food sector trusts that their food needs are secured by someone else. Similar thoughts apply regarding the satisfaction of other needs. The more each firm produces, the cheaper the products available, the closer society is to a profit-zero economy, and the better the overall welfare. Economic development happens the more we depend on each other, and not the other way around. Moreover, individual independence depends on overall interdependence. Rather than competing, economic development occurs just as long as society members can cooperate with each other. And this carts an efficient resource distribution.

Figure 16. Unemployment structure – types and causes.



Source: Author's own creation

An environment where resource concentration is aimed necessarily leads to a situation where some members of society, desperately or not, sooner or later, will resort to practices of expropriation. This will be factual evidence every time the decision-maker holding executive power foresees an immediate positive payoff, regardless of the negative welfare it can produce for others. When that happens, no society can ever rest in peace enjoying economic development.

The differences among economic agents' executive power define how some individuals can take advantage of others. Instead of engaging in relationships of mutualism and adequate proportionality, driven by a "win-win" mindset, society members often engage in negotiations under a "win-lose" perspective, where they fail to perceive future gains and strictly focus on the immediate expropriation of the other party's productive capacity. According to the perceived executive power, so is the propensity of the economic agent to engage in the economic game displayed in Figure 4.

Prior exposition extols the relevance of the current institutional environment to perpetuate unemployment in any economy. Moreover, it is clear that the institutional environment is missing proper mechanisms to adapt to environmental changes. Economics acknowledges that the propensity to consume is not steady in the economy and that events, such as technological changes and other imponderables, affect society's ability to produce. Economists are aware that these events directly foster employment changes under an institutional environment that secures uneven executive power across society members. Hence, the problem of unemployment cannot be overcome, unless society chooses to enact a full-employment economy.

7) How to eradicate inflation?

Inflation, defined as the general and continuous increase in prices, poses a number of challenging questions to economics. First, if the definition of inflation depends on the continuity of price increases of the generality of available products through time, then what are the proper procedures to distinguish between a discrete increase and an ongoing one? Second, if the total amount of available money tautologically equals the total produced quantities times their prices, then how can exist a general belief that a broad wage increase creates inflation? And third, firms are the ones setting up the selling price of their products. So, if it seems to be a simple matter of choice, then what precludes inflation from being eradicated? Yet, answering these questions is mandatory for they insightfully outline why it has not been accomplished so far.

Addressing the distinction between a discrete price increase and a continuous one is of the utmost importance. Economists are long ago aware of the usefulness of the price system to foster efficient resource allocation. In 1776, Adam Smith refers that the increase in the price of corn following a bad harvest contributes to an automatic and proper distribution of the available good across the entire community, allowing for the prevention of famines. Hence, society must welcome any price adjustment originated in the normal market functioning. And the process of eradicating inflation cannot imperil the pricing system's regular operation.

From equation (28) we know that $M = PQ$. Equivalently, $P = M / Q$. Any price adjustment that comes out from changes in the production's quantities is welcome for the economy and must be treated as a discrete price change that does not represent any inflationary danger. It is plain that prices cannot indefinitely increase due to a continuous decrease in the produced quantities of goods and services.

In this instance, it is worth noticing the mistaken announcements made by tv broadcasts that often disclose news confusing inflation with discrete price adjustments. Figure 17 shows a New York Times recent article where the reduction of several products' produced quantities gave rise to an increase in their selling prices. The reporter broadcasts the information referring to the term inflation as a synonym of the product price increase and without concern regarding what happened to any money aggregate during the period under analysis. Economists know that prices cannot increase forever due to a decrease in the quantities produced. Economists also know that prices decrease if production increases to recover its prior level. Finally, economists are aware that people's perceptions of the circumstances combine with executive power to deliver a given behavioral path. But the general public is seldom aware of what is proper economic policy.

When a general price increase occurs due to a decline in the overall produced quantity of goods and services, such as it has just happened due to the pandemic imposed measures on the economies worldwide, raising fears of further price increases just fosters defensive reactions. Firms, expecting further price increases for their raw materials, are left with three possible actions: increasing their selling price, reducing production to affordable costs, and asking for additional credit to replace the fall in their revenue.⁶⁵ All mean an additional price increase. Only the latter option might trigger an inflationary pressure.

Notice that the firm cannot indefinitely increase its selling price for it depends on the demand available for its product. Notwithstanding, credit can be granted forever while

⁶⁵ This might come from either existent savings or banks' creation of "empty money."

production can only be stopped (which is a case where the product's price does not matter anymore). Accordingly, inflation, as a continuous and general price increase that jeopardizes economic development and overall welfare, depends on the creation of new money only. People's expectations can be controlled just as long as the creation of "empty money" is tightly controlled by the monetary authorities.

Figure 17. Society's confusion of inflation with regular market functioning.

The New York Times

BUSINESS | Britain's inflation rate climbs to its highest level in 30 years.

Since the pandemic disrupted supply chains and labor markets as economies unevenly shut down and reopened, many countries are facing higher-than-expected inflation rates that are lasting longer than policymakers anticipated. In the [United States, the inflation rate rose to 7 percent](#) in December, its highest level in 40 years. In [the eurozone, the annual rate increased to 5 percent](#) last month, and it hasn't been higher in the history of the common currency, which was established in 1999.

The [Bank of England](#) increased interest rates in December with inflation running substantially above its 2 percent target and not expected to peak until April, when households are estimated to face a more than 50 percent increase in their energy bills. Most analysts expect the bank to raise rates two or three more times this year, and the next increase could be as soon as the next rate-setting meeting on Feb. 3.

Source: <https://www.nytimes.com/2022/01/19/business/uk-inflation.html>.

Normal price adjustments towards the upside mean no inflationary pressures unless "empty money" is created. Due to its inability to properly control the creation of "empty money", the monetary system forces the monetary authorities to manually intervene in the economies, as illustrated in the second paragraph of the text displayed in Figure 17. Controlling inflation without jeopardizing the regular operation of the economy requires tweaking the monetary system we depend upon in such a way that enables the monetary authorities to prevent new money creation when it is not suitable.

The power of wage increases to trigger inflation is a misconception widespread in society. Inflation control and economic stability have been the worldwide governments' hand flags regarding economic affairs in the late forty years. The worries regarding the economic perils brought by inflation have grounds on the negative opportunistic behavior that it decisively feeds. These fears are justifiable for they foster a steady economic crisis whose roots are easy to explain. Once a persistent expectation of continuous price increase

sets in, firms recursively increase their products' price to secure their turnover, workers keep asking for higher wages to maintain their living conditions, and banks keep producing more money to safeguard both the firms' increased demand for credit and their own needs for survival, leading the artificial economic variables' pace of change to supersede productivity while ruining overall welfare. In this instance, prices increase faster than quantities are produced, impeding a portion of the entire production from being sold. Hence, under such an inflationary environment where the continuous expectation of price increases is exacerbated, firms' production is precluded from being fully consumed, and firms are forced to fire employees, further aggravating the economy's health. Controlling inflation is thus a must for ensuring overall welfare. But controlling inflation has nothing to do with controlling wages.

When an individual is reasoning like a firm's owner, he or she strongly believes that the price of whatever a firm produces depends upon the firm's management board. Following this reasoning, and because it is true that the price is a decision pertaining to the realm of the firm's product marketing mix, it makes sense for the managers' minds that once their employees are claiming wage increases they will be sparking a price increase in the firm's product selling price. However, a firm cannot increase the price of its product just because its employees are asking for higher wages. The firm decides the price of its products according to a marketing-mix strategy that considers other firms positioning in the market and how much demand is directed by consumers towards the firm's product. The bottom line is that, regardless of the significance of wages paid, the selling price decided by firms depends on the normal functioning of the market for goods and services.

Figure 9 displays the aggregate supply-demand market chart considering the space defined by price and produced quantities. The supply curve represents the minimum price at which the firm is willing to sell its product according to the given produced quantity. Hence, the supply curve represents the points where the combination between the selling price and the produced quantity returns a zero profit to the firm. The aggregate demand curve, in turn, represents the maximum price consumers are willing to pay to purchase a specified quantity of that product. Accordingly, the monopolistic firm raises the selling price of its product up to the level defined by the demand curve to maximize its profit. Consequently, if more firms enter the market increasing the quantities available, then the producer is forced to lower his or her selling price in order to be able to sell the entire production. The process naturally finds its equilibrium at the intersection between supply and demand. Necessarily, this is a point where firms' profit is zero, and the event of any

employee's claim for a higher wage does not have any meaning at all. The current employer cannot pay higher wages for the firm is already scoring a zero profit, and the same is happening with the remaining firms operating in the market. When the market for goods and services is in equilibrium, there is no room for a wage claim to trigger any sort of successful pressure to increase prices. When this happens the economy is in its full-employment equilibrium.

Notwithstanding this truth, economists often find a positive statistical relationship between the level of inflation and the level of employment, which is known as the Phillips Curve. This statistical relationship defies the above theoretical explanation of why the minimum price level is reached at a full employment reality and requires further inquiry.

It is unanimously accepted that managers make mistakes and that firms are usually unable to optimize their decision-making process – i.e., commonly, firms do not pick exactly the monopolistic price given the total quantity of products available in the market. As noted in Figure 9, any point below the demand curve and above the supply curve is possible in an economy where unemployment is allowed. These are points where firms are scoring a profit while setting up selling prices below the maximum price allowed by their market's demand curve. These are also points where unemployment is a reality because, at the current sell price, the firm could increase the produced quantity but chooses not to do it. This set of points constitutes the “business zone.” When the firm's price-quantity combination is within the inefficient “business zone”, firms have room to increase the selling price of their products. The firm's price is still below the market's maximum demand for the good's available quantity. Employees can claim higher wages once the firm is still profitable to accommodate such production cost increase, and employers accommodate the claim by increasing their products' selling prices. This is the reality of the economies worldwide.

It is worth mentioning that the available data also supports the above explanation.⁶⁶ Hazell, Herreño, Nakamura, & Steinsson (2021, p. 1) pose that “*the insensitivity of inflation to changes in unemployment over the past few decades has led many economists to suggest that the Phillips curve has disappeared*” while Del Negro, Lenza, Primiceri, & Tambalotti (2020, p. 2), in their non-technical summary, ask “*why has U.S. inflation*

⁶⁶ See, among many others, Hazell, J., Herreño, J., Nakamura, E., & Steinsson, J. (2021) “The slope of the Phillips curve: Evidence from the U. S. states” and Del Negro, M., Lenza, M., Primiceri, G. E., & Tambalotti, A. (2020) “What's up with the Phillips Curve?”

remained stable since the 1990s, even though real activity and unemployment have cycled up and down?”

This explanation clarifies why eradicating inflation is, indeed, a matter of choice. However, regarding economic affairs, the extension of what the concept of choice truly means acquires huge significance.

First, eradicating inflation requires a full-employment economy. When the economy is within the “business zone”, besides being inefficient (for it is possible to increase the available quantity of goods at the same selling price), it presents an amalgam of information that often misleads the monetary authorities into acting contrary to what are the true economic needs. If prices climb in the direction of the monopolistic price, the market is simply performing as it must, and there is no need for any monetary intervention. In this instance, the effect of the monetary authority intervention is simply precluding the market from signaling to new firms where are society’s less satisfied needs. An interesting study by George B. Tawadros, encompassing 27 countries that have adopted an inflation-targeting regime between 1980 and 2006, concludes that almost all the central banks failed at controlling inflation.⁶⁷ Hence, the effectiveness of the monetary authority’s intervention directly depends on the existence of a full-employment reality.

Second, inflation can only be originated in the continuous creation of “empty money.” However, granting credit to new firms is the process that allows start-ups to loom out with efficient production processes, delivering new products at lower prices, and fostering overall welfare improvement. Recalling equation (28), notice that the inflationary pressure can only happen when the credit is not financed by existing savings because, in this instance, both the monetary aggregate, M , and the total produced quantities, Q , are standing still and, therefore, the average weighted price, P , does not change. Healthy monetary surveillance ensures that the increase in the overall price system triggered by the granted credit is overcome in the near future by the availability of higher product quantities at lower prices. If it is not so, then “empty money” creation must be impeded by the monetary authorities. The literature has shown that the increase in prices only assumes a

⁶⁷ See Tawadros, G. B. (2009) “Testing the impact of inflation targeting on inflation.” Only two countries (Chile and Indonesia) could statistically provide a positive result supporting the artificial intervention in the monetary markets. The remaining 25 countries either have shown a total failure (Australia, Brazil, Finland, Israel, Mexico, New Zealand, Norway, Peru, Poland, Romania, South Africa, Spain, Switzerland, UK, Canada, South Korea, Sweden, and Czech Republic) or an insignificant effect (Colombia, Hungary, Iceland, the Philippines, the Slovak Republic, Thailand, and Turkey).

dangerous prospect when it crosses the 5% threshold.⁶⁸ Consequently, it is mandatory that the monetary authorities control the creation of “empty money” within this standard.

Third, setting up a monetary system where banks can create new money according to the identified potential of a business project puts every bank in equal market conditions regardless of the bank’s size. Under equal conditions, small banks will be competing with the big ones for the best business projects. In this instance, the total amount of deposits in each bank’s portfolio has no weight or meaning. Accordingly, the executive power to act in the market is equally widespread among the entire participants in the financial market, and only the best ones performing new business project evaluation thrive. This adjustment of the financial system allows the monetary authorities to fully control inflation without jeopardizing economic development.

Fourth, preventing money creation when it is not suitable requires abolishing collateral from an investment credit operation. Negative opportunistic behavior is at the forefront of the specific choice for using collateral in any financial operation. If the financial system provides banks with the autonomy to create empty money that allows them to be a risk-free business partner, then banks would be jumping at every opportunity to create empty money, regardless of its virtue as a good business opportunity. Banks would be driven by greed, mainly spurred on getting their hands on an otherwise inaccessible asset. However, if the collateral is not allowed in investment credit operations, then a bank's total focus is on the business project's ability to provide a steady future income.

Fifth, a full-employment economy means a profit-zero environment. It means an economy that maximizes wages and efficiency. It means an economy where employers are able to fire their employees at will and where employees can quit their jobs at once while moving immediately to more productive activities. Compared to the current reality, where economies are inside the “business zone,” the wages of the majority of employers and employees will climb significantly, while the income of those who live upon rents will vanish. Individually, being the owner of a business still remains important for it means being able to lead the entire production process and ensuring the highest possible return according to the possessed know-how. However, as it is outlined by equation (15), only the best employers will be able to thrive, rather than the ones holding the highest number of assets.

⁶⁸ See Alvarez, F., Beraja, M., Gonzalez-Rozada, M., & Neumeyer, P. A. (2019) “From hyperinflation to stable prices: Argentina’s evidence on menu cost models.”

Rearranging the institutional environment to eradicate inflation from being an economic curse is perfectly possible. It is a matter of choice. It needs the deployment of a reward-based system. It requires society to choose to be efficient and to embrace a path of committed joint effort as well.

8) How to eradicate poverty?








According to the United Nations ⁶⁹ “poverty entails more than the lack of income and productive resources to ensure sustainable livelihoods” and “its manifestations include hunger and malnutrition, limited access to education and other basic services, social discrimination and exclusion, as well as the lack of participation in decision-making.” The data gathered on extreme poverty around the world reaches astonishing numbers. In 2015, 10 percent of the world’s population lived on less than \$1.90 a day. In 2005, 100 million people were homeless worldwide. From 2010 to 2017, the estimated number of unsheltered homeless people in England climbed 168.7%, from 1,768 to 4,751 individuals.⁷⁰ In January 2022, there were 48,413 homeless people sleeping each night in New York City’s main municipal shelter system, reaching the highest levels since the Great Depression. The world is not on a path to eradicating poverty.

At first glance, it may seem that the measures to eradicate poverty are similar to those required to deal with the problem of scarcity. New York City is one of the world’s richest cities in GDP terms. However, if we look at the data disclosed in 2021 by the United States Census Bureau regarding income and poverty in New York City, we realize that poverty presents a quite peculiar problem. From 2016 to 2020, the median household income was \$71,117; the per capita income in the last 12 months was \$40,898; 12.7% of the population was living in poverty; 1 the city’s total estimated population was 19,835,913; and the total estimated households were 7,417,224. Figure 18 displays these figures and suggests an immediate question: If the median household income reaches an impressive \$71,117 and only 12.7% of the population lives in poverty, then what precludes society from distributing a very small income fraction of those who are enjoying higher incomes to alleviate the extreme wants of the lowest income population? Eradicating poverty is a quite different challenge from solving the scarcity problem.

⁶⁹ See <https://www.un.org/en/global-issues/ending-poverty>.

⁷⁰ See <https://ourworldindata.org/homelessness> and www.coalitionforthehomeless.org.

Figure 18. Income and poverty in New York City, 2021.

 Population Estimates, July 1 2021, (V2021)	 19,835,913
 Households, 2016-2020	7,417,224
Income & Poverty	
 Median household income (in 2020 dollars), 2016-2020	\$71,117
 Per capita income in past 12 months (in 2020 dollars), 2016-2020	\$40,898
 Persons in poverty, percent	 12.7%

Source: United States Census Bureau

The inability to eradicate poverty extends worldwide, regardless of how rich a city or a country is. The numbers evidence that the problem regarding the eradication of poverty is not much about knowing what to do, but rather understanding why we do not do it on a worldwide consistent basis!

Following the usual methodology, we proceed by identifying the causes of poverty, its theoretical framework, the behavior induced by the institutional environment, and the behavior desired by society.

The causes of poverty can be detected through the United Nations definition given above. Indeed, poverty starts to be eradicated when society can produce enough goods to fulfill the entire population's most basic needs regarding shelter, food, clothes, sanitation, education, and participation in decision-making. Either, a country such as England or a city such as New York has a number of goods and services available that are more than enough to eradicate poverty in the blink of an eye. Yet, they do not do it. The cause of poverty is not grounded on the lack of productivity (which is the way to solve the scarcity problem).

Even when able to eradicate poverty, worldwide societies do not do it! Intuitively, the economist is induced to believe that the problem of poverty is merely one of resource distribution. However, a closer look at equation (34) evidences that overall welfare is maximized when both expropriation, τ , and unemployment, γ , are zero. Hence, simple distributive practices grounded on taxation do not properly solve the poverty problem when poor people are prevented from entering the production process in the first place. Poverty is, therefore, caused by inadequate use of executive power. This failure leads society to fall short of overall welfare potential by producing less than what can be done with far greater work efforts than what is required. Poverty, more than one of the main economic problems, is one of the main economic inefficiencies.

Considering that poverty is a worldwide reality, it is required to understand why nonoptimal solutions are constantly being chosen. Virtuous economics assumes that people aim at maximizing their utility, regardless of their inability to always find the optimal

solution. Human's "bounded rationality" is long ago recognized by the literature but it is also recognized that humans learn how to think. Following the assumption of human desire to maximize individual utility, equation (1) poses that opportunistic behavior, O , depends on both the people's perception of the circumstances, P , and their executive power, $\&$, to actually act upon that perception – i.e., $O(P, \&)$. Accordingly, if the decision-maker is constantly deciding on the perpetuation of poverty, there must be because he or she foresees a decrease in his or her own utility by acting differently. Moreover, the individual chooses not to eradicate poverty because, just like pirate 'A,' he or she can act in such a way.

There are forces raised by our current institutional environment that induce worldwide decision-makers to perceive that the best way to take care of their utility is by perpetuating poverty. According to figure 4, people choose to compete rather than cooperate when their immediate payoff is bigger when competing. Furthermore, people choose to compete because they cannot reason about the future amount of welfare that they are self-sabotaging by choosing to compete. As illustrated in figure 4, to get a prospect of a thriving future, the individual must realize the possibility of reaching a significantly higher output working together than what is possible to do on lonely performance. Furthermore, the development of an overall accepted understanding of cooperation requires a commitment based on sharing this awareness across all participants. Hence, the strongest force preventing poverty from being eradicated is the perception held by the decision-maker of improving his or her own welfare by competing with others for resource and production control.

A second force precluding society from eradicating poverty is the steady general belief that a person, a firm, or a country lives better the higher the independence from the outside world. Viswanathan, Rosa & Ruth (2010) studied the exchanges and market activities of the people engaged as subsistence consumer-merchants (SCMs) in Chennai, India. Subsistence markets lie in microenterprises operated by people living in poverty. In India, in 2006, more than 800 million people had incomes below \$2 per day, and approximately 700 million people lived in rural areas without important infrastructures for overall welfare such as electricity, medical services, and hygienic sanitation.⁷¹ The authors pose that *"common among SCMs is the belief that self-employment is preferable to working for others because it provides greater control over generating income and using it*

⁷¹ Data disclosed by Population Reference Bureau, 2006. See Viswanathan, M., Rosa, J. A., & Ruth, J. A. (2010) "Exchanges in marketing-systems: The case of subsistence consumer-merchants in Chennai, India."

to meet family needs” (Viswanathan et al., 2010, p. 10). This belief is contrary to the observable characteristics of economic growth which, according to the literature, is grounded on shifting the structure of production from small to large firms, from self-employment to wage work,⁷² and from subsistence to transformational entrepreneurship. Furthermore, the available data disclosed by OECD stands out the general weak productivity of microenterprises. The research reinforces equation (34) guidelines since the way to maximize overall welfare is by a full-employment economy that seeks scale economies as much as possible. The creation of microenterprises while lacking proper infrastructures, training, and financial resources for the endeavor is not the way to eradicate poverty. Believing that it can be a solution is just another barrier that needs to be removed.

The two above-mentioned forces hindering poverty from eradication are induced by the institutional environment. SCMs opt for depending on themselves since they cannot depend on another productive unit. This belief will likely change under a full-employment economy. Entrepreneurs, banks, and governments choose to compete because they fear accepting to sacrifice a certain short-term loss in exchange for a better future. Yet, in the first place, they are also accepting the risk of losing to the competition. Once again, their fears will be removed under a full-employment economy.

If society’s deepest will is to thrive, then the behavior induced by the institutional environment is different from the behavior desired by society. Worldwide, people are fostered to either work too much or work too less, but they are not persuaded into developing optimal work efforts. Both productivity and overall welfare are getting compromised.

Executive power depends on a wide fan of determinants whose effects immediately impact economic efficiency. The exercise of power is relevant to economics only when it is consequential to overall welfare. The literature touches on a multiplicity of interesting topics related to power exercises such as the concepts of legitimacy, organizational change, commitment, cultural dimensions, opportunism, macroeconomic policies,⁷³ and many

⁷² See Gollin, D. (2008) “Nobody’s business but my own: Self employment and small enterprise in economic development.”

⁷³ See, for instance, John, G. (1984) “An empirical investigation of some antecedents of opportunism in a marketing channel,” Suchman, M. C. (1995) “Managing legitimacy: strategic and institutional approaches,” Dacin, M. T. (1997) “Isomorphism in context: the power and prescription of institutional norms,” Human, S. E., & Provan, K. G. (2000) “Legitimacy building in the evolution of small firms multilateral networks: a comparative study of success and demise,” Guiso, L., Sapienza, P., & Zingales, L. (2006) “Does culture affect economic outcomes?” Deakin, S. (2016) “The contribution of labor law to economic development and growth,” and Auclert, A. (2017) “Monetary policy and the redistribution channel.”

others which, in one way or another, enhance our understanding of what is the proper use of executive power. However, the literature is scarce on explaining what precludes proper executive power from being deployed, even in the presence of adequate conditions.

Herein, the compound of equations (15) and (34) show that eradicating poverty depends on enacting a full-employment economy. Under a full-employment economy, every individual is able to freely choose between being an employer or an employee, without being afraid of failing to secure an income. Under the assumption that the person is maximizing his or her own utility, the choice is, of course, strongly dependent on how much is the individual expecting to earn by engaging in a given economic activity. Moreover, by having the highest possible aggregate demand available at all times, this institutional environment induces entrepreneurs to fully engage in scale economies. The institutional environment is tweaked from a penalty-based system into a reward-based system.

However, this step has not been done before because it is a very difficult one to take. Setting up the proper institutional framework to foster overall welfare and eradicate poverty requires a widely accepted commitment across the entire society to be strongly held. Hence, the determinants of commitment acquire a huge significance. Gundlach et al. (1995, p. 90) outline that *“potentially interesting explanatory variables include the nature and frequency of interactions among parties, the quality and frequency of communications, the types of power or influence strategies used, and uncertainty and competition in the external environment.”* The authors are referring to a long-lasting commitment between two parties. Considering that we are now living in a global world, where interactions are vast and happen worldwide, and where the frequency of communications occur at the fastest pace ever, it is plain that eradicating poverty demands a sharing will to do so across the entire society. A worldwide understanding of the economic game illustrated in Figure 4 precedes its success. Consequently, it is quite a demanding task.

9) How to reduce income inequality?

Income inequality refers to how unevenly is income distributed throughout society. According to relevant institutions, such as The World Bank and The United Nations,⁷⁴ important income asymmetries occur worldwide: between countries, within countries, within firms, and within households. Inequality is often confused with poverty, but the two situations, while overlapping some causes and consequences, constitute two different

⁷⁴ See <https://www.worldbank.org/en/topic/isp> and <https://www.un.org/en/un75/inequality-bridging-divide>.

economic issues. The main reason why income inequality is an economic problem is that it prevents opportunities from being taken. And those severe losses always compromise overall welfare.

Following the usual methodology, we proceed by identifying the causes of inequality, its theoretical framework, the behavior induced by the institutional environment, and the behavior desired by society.

The first and foremost known explanation of why income inequality is unavoidable in society was laid down by Adam Smith (1756, p. 105).

“The five following are the principal circumstances which, so far as I have been able to observe, make up for a small pecuniary gain in some employments, and counterbalance a great one in others. First, the agreeableness or disagreeableness of the employments themselves; secondly, the easiness and cheapness, or the difficulty and expense of learning them; thirdly, the constancy or inconstancy of employment in them; fourthly, the small or great trust which must be reposed in those who exercised them; and, fifthly, the probability or improbability of success in them.”

Hence, there are a number of situations fostering natural income inequality that arises from the nature of the employments themselves. This inequality finds its roots in labor and in the natural heterogeneity among the tasks at hand and the existing human and material resources. Virtuous economics acknowledges these differences and accepts them, because, in this instance, the wage that is settled in any of these economic relationships is simply the outcome of the regular functioning of the labor market.

However, other causes of inequality emerge from the institutional environment where economic activity evolves. Some stem straightforwardly from the use of executive power. Others are subtleties of “bounded rationality” on which mankind is still learning how to think. All require further inquiry, for these are the ones who trigger negative opportunistic behavior and imperil overall welfare.

The relevant link between executive power and the institutional environment is, in this particular case, set up by the enactment of a private property regime. Adam Smith wisely poses that “*the produce of labour constitutes the natural recompense or wages of labour*” (Smith, 1756, p. 69). However, the author further adds that “*as soon as land becomes private property, the landlord demands a share of almost all the produce which the labourer can either raise or collect from it*” (Smith, 1756, p. 70), whether this be through the collection of imposed rents or the payment of small and unfair wages. This state of affairs sparks a non-market activity, which, despite its inability to foster overall

welfare, represents a positive payoff to some members of society. It raises the importance of the “political ties” concept.

The literature extensively focuses on the effects of political ties on overall economic performance. Henisz (2000, p. 3) eloquently explains that “*institutional environments in which economic returns can easily be secured through political channels lead individuals to reallocate resources from economic to political activity.*”⁷⁵ This state of affairs is reported by Adam Smith (1756, p. 71) who poses that “*we have no acts of parliament against combining to lower the price of work, but many against combining to raise it.*” The tug-of-war between employers and employees started a long time ago, and the engagement in the economic game illustrated in Figure 4 is still going on in the twenty-first century.

The link between ownership and income entitlement still holds. A comparison between Figure 19 and Figure 20 allows us to detect the positive correlation between net personal wealth share and national income share. For instance, it is easily perceived that those countries where the top 1% net wealth share is above 35% of their country’s total wealth are also those where these persons hold more than 20% of the total income. In the United States, half of the population lives on only 14% of total income while owning less than 1.7% of total wealth.

Witold Henisz further outlines that, to society’s members, the engagement in political ties is, at best, a zero-sum game. However, economics throws evidence that this is a game that actually returns a negative outcome. First, as outlined in Figure 4, rather than engaging in competitive practices, society needs to focus on cooperative attitudes to reach higher levels of productivity. In the case of cooperative commitment, there always is a finite amount of time that provides a better final state of welfare to every society’s member, with no exception whatsoever. Second, as outlined in Figure 7 and equations (15) and (34), optimal work efforts are not fostered by this institutional environment. This carts a significant loss of productivity and an immeasurable loss of overall welfare. Nonetheless, the price of inequality extends far beyond the quantitative measure to reach the humans’ inner well-being and exposes our human limited ability to reason on complex matters.

Sometimes, people believe that economic activity naturally fosters income inequality. As we have seen above, this idea is partially correct. It is true in what regards the nature of the work developed, but it is false in what concerns the overall distribution of the final product. The latter is often the outcome of human choices induced by the

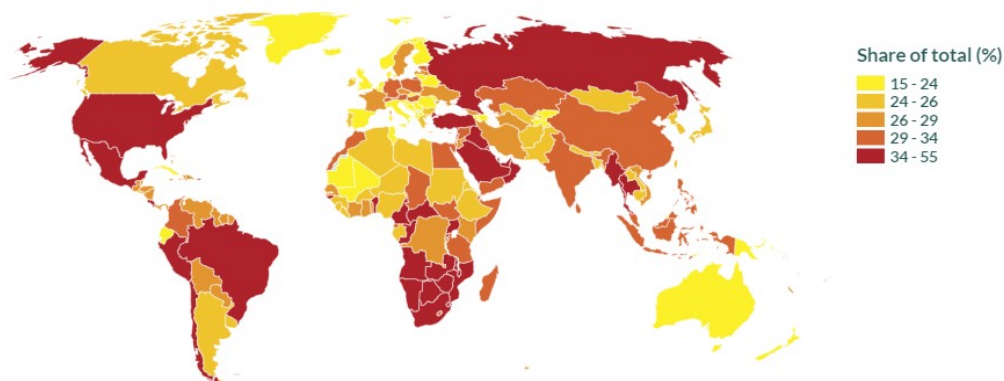
⁷⁵ See Henisz, W. J. (2000) “The institutional environment for economic growth.”

institutional environment. Therefore, apart from the work-related inequality, virtuous economics acknowledges that the remaining income inequality is not an inevitability.

Figure 19. % national net personal wealth share, 2021

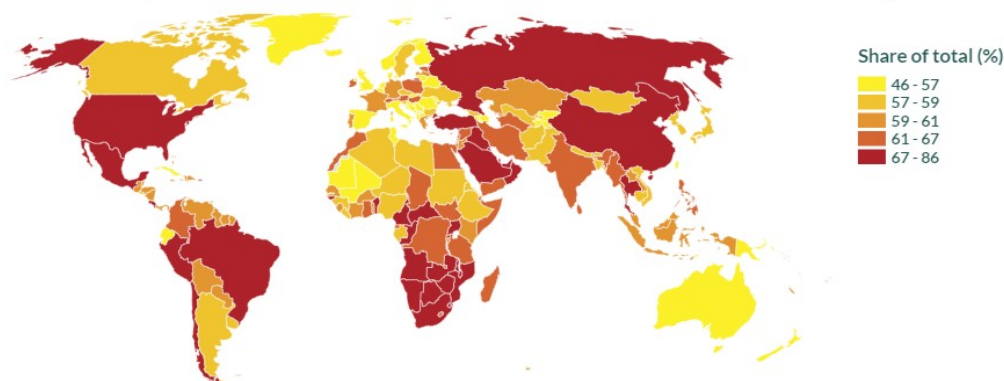
Top 1% net personal wealth share

Region View



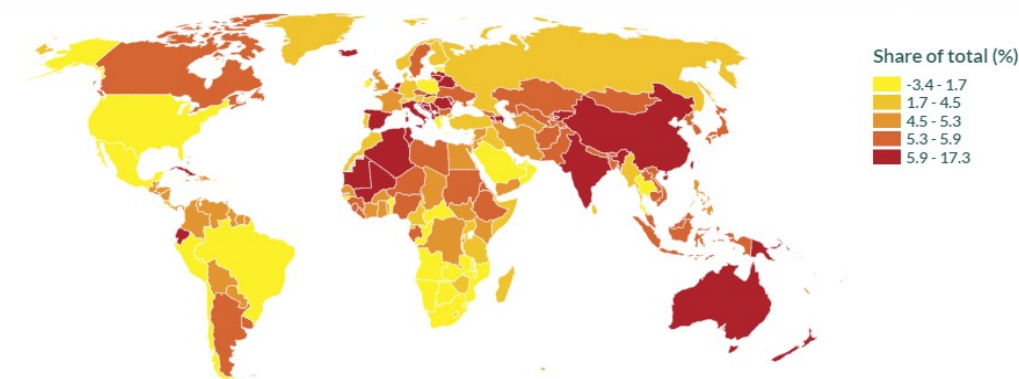
Top 10% net personal wealth share

Region View



Bottom 50% net personal wealth share

Region View

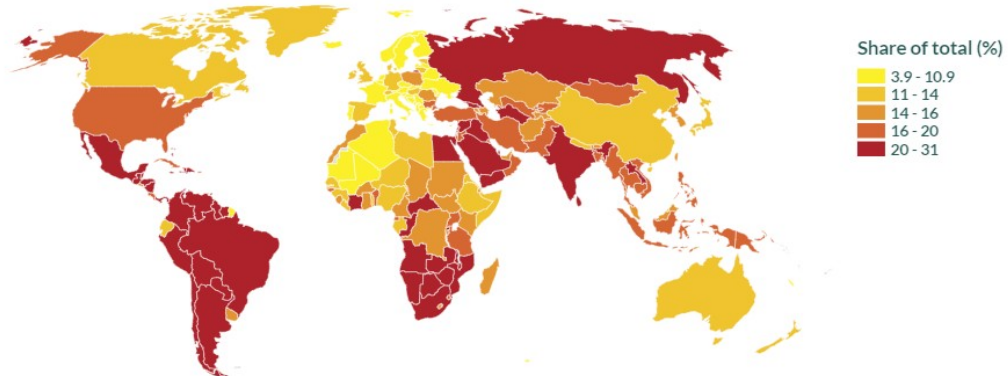


Source: World Inequality Database (<https://wid.world/world/>)

Figure 20. % national income share, 2021

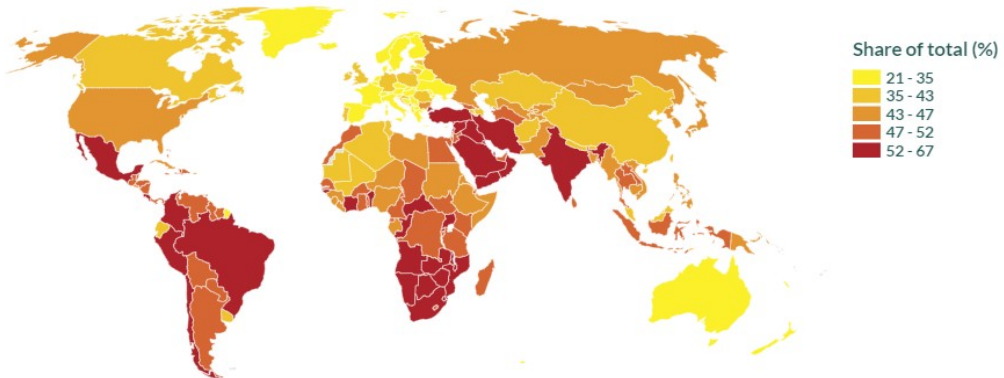
Top 1% national income share

Region View



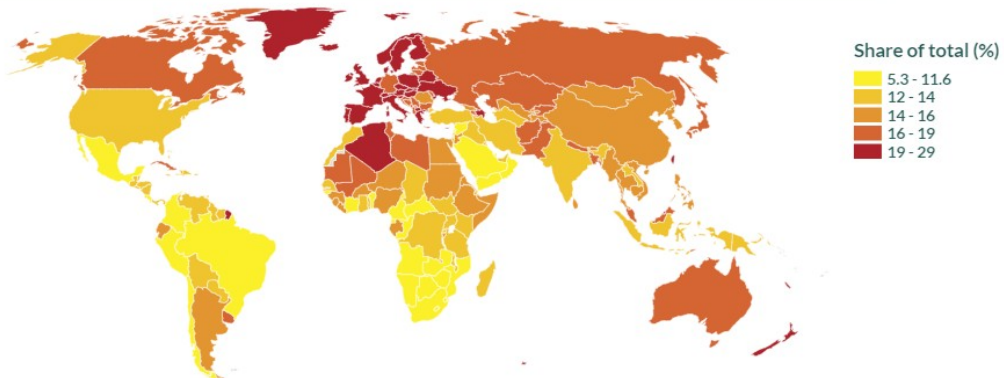
Top 10% national income share

Region View



Bottom 50% national income share

Region View



Source: World Inequality Database (<https://wid.world/world/>)

In addition to non-market activity, such as the engagement in political ties, there are other subtle negative opportunistic behaviors that are triggered by the institutional environment in general and that perpetuate further income inequality. These have three grassroots: the persistent economic unbalance in the market for goods and services, the

regular functioning of our current monetary system, and the unbalance in the labor market. These are economic activities grounded on the institutional environment.

The following exposition poses the risk of redundancy. Yet, it serves the purpose of bringing closer theory and practice.

We start with the analysis of the market for goods and services permanent disequilibrium. We inquire how and why it is so.

Figure 9 outlines the roles of aggregate supply and aggregate demand in setting up the price-quantity combination of a given good in the market for goods and services. We understand that the price indicated by the supply curve represents the minimum price that the producer needs to ask in order to pay the production costs of producing a given quantity. Hence, the supply represents the price-quantity combinations of profit zero. Every producer, seeking his or her best interest, is always trying to ask for a selling price well above the price represented by the supply curve. Entrepreneurs often resort to a markup strategy in their marketing mix definition. This mark-up strategy seldom allows spotting the exact maximum price the market demand is willing to pay for a given produced quantity. This is particularly true under situations of oligopoly, for the entrepreneur does not have complete information on the total quantities of the market's supply and demand. This overall normal situation of the unbalanced market for goods and services sets up a circumstance where every producer has room to increase their selling prices in case the price of any production factor happens to increase. The market lies in a price-quantity combination that is above the supply curve and below the demand curve: the business zone.

This normal behavior of the market for goods and services defines an overall mindset that induces negative opportunistic behavior in both buyers and sellers. First, both economic actors mistakenly perceive that the gain of one side is the loss of another. Buyer and seller tend to focus on the monetary transaction forgetting that the product's transaction entails a benefit for both of them: the satisfaction of a need in the case of the buyer and the payment of the wages which, in turn, enable the satisfaction of the seller's wants. Despite the reason for the producer's existence is, in fact, the satisfaction of a buyer's need, the producer is highly aware that his or her own survival depends upon the continuous ability to sell their entire production. Accordingly, the producer's focus changes from the satisfaction of the consumer's need to his or her ability to keep selling across time. And this poses a significant threat to overall welfare.

Overall welfare is severely compromised by the unbalance in the market for goods and services. Beyond the inherent inequality issue, the above-mentioned reality triggers a bunch of negative opportunistic behaviors, only bounded by imagination. A few examples: pharmaceuticals are induced to produce medicines to alleviate the symptoms rather than to actively seek to cure the disease; car builders are induced to decrease the durability of the constituent parts of the motor to ensure that buyers are forced to a new purchase in the future nearby; exaggerated quantities of water might be added to wall paint as a strategy to either get an immediate higher profit or obtain another painting order sooner; etc. The welfare losses inherent to the unbalance of the market for goods and services are huge. Moreover, this state of affairs carts an immense inefficiency in the use of material resources which poses very serious environmental threats.

The permanent unbalance in the market for goods and services allows the entrepreneurs possessing more purchasing power to bargain for lower purchasing prices when acquiring their raw materials. The exposition of the seller to the sale necessity enables the buyer to ask for a lower selling price when negotiating the transaction. Those buyers who have higher purchasing power manage to get lower production costs. They acquire higher profitability and the capacity to sell their products at a better price than their competition. Either way, with time, the entrepreneur that starts with higher purchasing power tends to increase it, while the entrepreneur that does not enjoy that financial strength tends to disappear. This state of affairs translates into the perpetuation of income inequality among producers, regardless of how similar they might be at satisfying their consumer's needs.

Hence, resting in the business zone leads the market for goods and services to provide a source of income inequality. Yet, it solely depends on the institutional environment where the economic activity is evolving.

Five other sources of income inequality that escape the general public awareness are brought by the monetary system on which society has chosen to depend until now. One, concerns the simple and regular functioning of the financial system. Another refers to the use of collateral when supplying purchasing power to entrepreneurship. The third source of overall income inequality occurs when the financial system creates new money out of thin air to supply purchasing power to consumers. Fourthly, a subtle source of income inequality occurs when the financial system uses the householders' savings to provide entrepreneurs with the purchasing power they need. And finally, there is a plain source of income inequality due to the fact that the bank can create purchasing power out of nothing

while the remaining society cannot. Despite there being no evil whatsoever in the actions of any of the economic actors engaged in these activities, they are all sources of negative opportunistic behavior in society. It is simply the outcome of a misunderstood institutional environment that screams out loud to be fixed.

First, in a very interesting study by Gorton & He (2008),⁷⁶ the authors prove that banks' beliefs based on public information cause credit cycles. The financial market in general, and the banking system in particular, enjoy a general market situation that is classified by the literature as imperfect competition. Notwithstanding this fact, herein, we focus on the general functioning of the banking system to foster credit cycles, for this is a source of wealth inequality.

In a nutshell, the production of inequality rooted in the banking business is triggered as follows. The banking industry is regularly disclosing public information regarding its activity. It purports the amounts of credit granted and the bank's overall financial performance. When a competitor is increasing its performance along with an increase in the total amount of credit granted, the profitability induces other banks to act alike. However, the overall increase in the total amount of credit granted will gradually spark cautious behaviors. At the first sign of a customer's default or a decrease in the performance of a competitor, banks refrain from granting additional credit while still collecting their customer's installments as usual. Hence, the banking system withdraws money from the economy, reducing M in the equation (28), and forcing some firms to default payments. Since everything that is produced cannot be sold at the current prices, and prices do not fall down because entrepreneurs do not want to give up their profit levels, and/or employees do not accept a wage reduction, or both, then some firms are forced into bankruptcy. Firms' fight for survival triggers an unemployment increase which, in turn, further fuels the banking industry's fears. An economic crisis can be triggered by the regular functioning of the financial market alone while fostering wealth inequality. It might be illustrative that, by the time of the Great Depression, from 1929 to 1933, the monetary aggregate M2 declined by a large 33%.⁷⁷ When the economy is in its slump, the surviving entrepreneurs still enjoying purchasing power are enabled to acquire cheaper means of production, which were before in the hands of their market competition. Hence, this process leads the rich to get wealthier.

⁷⁶ See Gorton, G. B. & He, P. (2008) "Bank credit cycles."

⁷⁷ See Duca, J. V. (2017) "The Great Depression versus The Great Recession in the U.S.: How fiscal, monetary, and financial policy compare."

It is important to outline the fact that the enrichment of someone does not bring an economic malady per se unless the market for goods and services rests unbalanced.

The second source of income inequality is settled by the financial system when it resorts to the use of collateral for granting credit. In short, the use of collateral is meant to protect the bank against the borrower's default. However, if the bank creates money out of thin air to finance the credit operation (which they usually do)⁷⁸ the bank is entitled to the asset without providing any prior productive effort in exchange. Moreover, as shown by equation (28), the increase in M triggers an increase in P , which means that the entire society is paying for the transaction. If the firm goes bankrupt, the entrepreneur loses the asset to the bank and provides enrichment to the bank holders at the expense of the remaining society. On the other hand, if the credit operation is successful, the entire society benefits from the operation that was previously endured by itself. The use of collateral is particularly pernicious for it precludes borrowers devoid of assets from having access to a credit operation. It favors the big market players detrimentally to the small entrepreneur, for the former can resort to financing operations at a lower financial cost. A significant number of business opportunities are lost. Hence, rather than competency, it is financial power that is dictating failure or success. And this is a situation that jeopardizes overall welfare given the disequilibrium of the market for goods and services.

A third and more severe source of income inequality occurs when the financial system creates new money out of thin air to supply purchasing power to consumers. In this idiosyncratic situation, just like in the previous case and according to equation (28), the increase in the quantity of money in circulation gives rise to an adjustment in prices upward, leading the entire society to endure the credit operation. An immediate gain is provided to the seller of the consumer good, who is entitled to a profit increment due to an increase in the demand for the firm's product. However, the consumer is the one who rests obliged to refund the bank with the value of the credit granted plus interest. In this awful situation, only the bank and the seller improve their welfare. The remaining society gets worse. Once again, generally, the situation fosters a negative opportunistic behavior for every entrepreneur is wanting to sell their products and does not care about where is the consumer's purchasing power coming from. The more this behavior is replicated in society, the higher the income or wealth inequality, and the worse overall welfare is doomed to be.

⁷⁸ For instance, in April 2021, the European Union's Reserve Requirement Ratio was set as 1.0%, meaning that only 1% of total customer's money (in the form of overnight deposits, deposits, debt securities, and money market paper) was held in the Central Bank.

Fourth, a subtle source of income inequality emerges when the financial system uses the householders' savings to provide entrepreneurs with the purchasing power they need. In this instance, two different outcomes can come out of the operation. When the entrepreneur succeeds, then the entire society benefits from more products and/or lower prices. This is a situation where an intertemporal exchange of purchasing power occurs between the householder and the entrepreneur, while the banking system is taking a fee for intermediating the operation. The transaction does not induce any overall price increase because the total amount of money in the economy remains the same. Only a speculative opportunity is traded by a precautionary state. When the entrepreneur fails, then the bank cannot refund the householder with his or her savings, which were earned working. The providence taken by the monetary authorities, or the government on their behalf, is usually to create new money out of thin air to refund the bank with the money claimed by the householder. Now, the total amount of available money increases, leading to an overall price increase as advocated by equation (28). The entire society gets worse. However, this case presents a situation where banks are allowed to engage in speculative operations without risking anything at all. Hence, banks are entitled to score a risk-free gain at the expense of either the householder or the remaining society.

Fifth, an immediate source of income inequality emerges from the fact that banks can create purchasing power at will while the remaining society cannot. With practices of Reserve Requirement Ratio of 1% or below,⁷⁹ the banks are entitled to produce new money to provide purchasing power to whoever they wish to. As we have seen when discussing the functioning of the monetary system, the creation of empty money contributes to improving economic development when it is exclusively used to grant producers credit, for it allows the process that Schumpeter coined "creative destruction." However, it entirely devalues the householders' savings and enhances the attractiveness of the engagement in political ties or other influence games. While banks can endorse purchasing power to themselves or to a given society member, every householder in society is getting no return for their savings that came from their work efforts.

The way our current financial system is set out triggers income inequality when it interacts with the unbalanced market for goods and services. It is worth noting that the effects of income inequality only are consequential when the augmented purchasing power of an economic actor enables him or her to choose a given course of action.

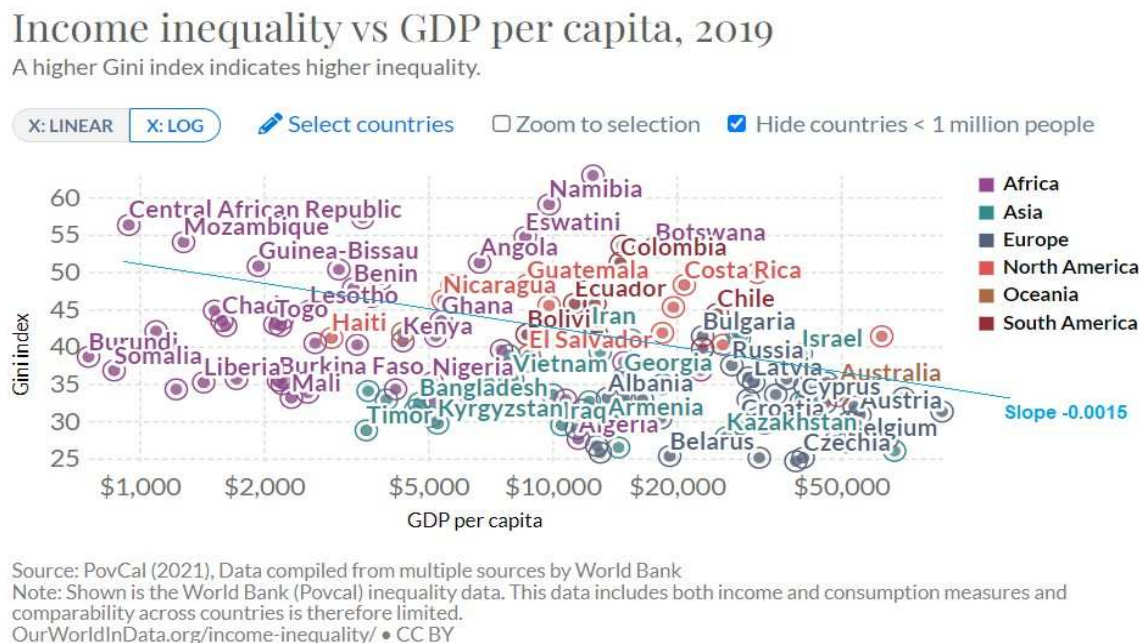
⁷⁹ In February 2021, the Japan's Average Reserve Rate was set as 0.8% and its long-term average is of 0.67%. See https://ycharts.com/indicators/bank_of_japan_average_effective_reserve_requirement_ratio.

Finally, the unbalanced labor market is itself a source of income inequality. First, it is straightforward that employers distribute to their employees the smallest possible fraction of the firm's income. Second, it is also plain that many employees are social loafing practitioners, collecting a significant amount of the income generated by the work effort of others. Again, the more these behaviors are observed, the more they induce the remaining members of society to act alike. Productivity is jeopardized and overall welfare is clearly sacrificed.

Figure 21 puts into perspective how income inequality relates to a country's GDP. It is outstanding the tendency of the world countries to concentrate on the figure's inferior right corner. Hence, a positive correlation between productivity and higher income equality is noteworthy.

Reducing income inequality to proper levels requires being restricted to the inequalities arising from the nature of employment only. This can be accomplished by applying the same remedy as advocated for the eradication of inflation as an economic issue. Once again, despite risking redundancy, I will proceed to highlight how the general economic equilibrium generates overall equality, how it evens executive power, and why balancing the three relevant macroeconomic markets depends on the institutional environment raised by society.

Figure 21. Income inequality and GDP



Source: ourworldindata.org

The core of a successful economy lies in channeling opportunistic behavior into a positive path. That means that each economic agent engages in a number of activities to improve his or her own well-being aware that he or she will be even better if the remaining society acts alike. This requires an overall culture of trust, dialogue, and organization focused on making each society's member interdependent from others. Equation (34) puts in perspective what the main economic aggregates look like under an economy that maximizes overall welfare. Specifically, expropriation τ (taxation or stealing) must be zero, unemployment γ must be zero, scale economies α must be as high as possible, the financial cost Φ must be as low as possible, material and immaterial resources, A and B , must be as high as possible, and employers and employees work efforts, e_e and e_w , must be at optimal levels. The first step to reaching this advanced level of economic development is already done. It is to understand the role of private property to foster optimal work efforts.

The first step is taken to secure higher levels of productivity, enabling the economy to push rightward toward its aggregate supply curve in the market for goods and services – i.e., providing more products and services at lower prices. But it is not enough for the economy to reach the intersection between supply and demand.

The second step required to evolve any economy to a higher level of development is to eradicate unemployment. This means assigning a productive activity to every society member that is able to develop economic activity and wants to do it. This step enables the market for goods and services to escape from the “business zone” and reach the intersection between supply and demand. Maximum efficiency is accomplished and every product is sold at the lowest possible price. Unemployment is zero and so are firms' profits. Wages, in turn, are maximized at full potential. And, the eradication of unemployment poses a problem of executive power.

Indeed, under an economic system where a full-employment economy is enacted, every employer is allowed to fire employees at will and every employee is able to find a job in the economic activity of his or her choice. Bringing the theory and the practice a bit closer, society might, for instance, define that when an employee is dismissed he or she will be facing a wage cut in his or her new employment. This way, social loafing is prevented because no one can tolerate a continuous and consistent decrease in his or her own income across time. Consequently, the individual will truly want to be good at what he or she is doing. In a similar vein, the employee that quits himself from an employer is free to negotiate at will the possibility of engaging in another job. In this institutional environment, a bad employer will be easily punished by both the employees that run away

and the competition that captures their best employees. A reward-based system can be enacted. But we do not have it in place yet.

Keeping the market for goods and services in equilibrium requires tweaking the financial system. This means a few corrections to the current state of affairs: to forbid the use of collateral in any credit operation (or declare legally void its use in any credit operation); to forbid the granting of consumer credit with empty money; to allow the creation of empty money to grant producer's credit only; and to preclude the creation of empty money if inflation reaches the 5% threshold.

Again, taking a closer embrace between theory and practice, it is important to identify how opportunistic behavior is channeled today and compare it with this proposed institutional environment.

Today, firstly, it is worth outlining that banks can create money out of thin air with no effort whatsoever while asking for collateral to provide the borrower with this additional purchasing power. Note that the bank can provide this purchasing power to itself but the remaining economic agents can not. Consequently, the money that comes from nowhere is given to the borrower in exchange for an asset that somebody had to work hard for it. If the borrower succeeds in the endeavor, the individual will give back to the bank the product of his or her hard work. If the individual fails, the bank takes the asset. Banks are, therefore, prone to grant credit as much as possible without too much regard for what is the borrower going to do with this new purchasing power. Nevertheless, under an institutional environment where the collateral is not allowed, if the borrower fails, the bank loses nothing because it has just created money out of thin air with no productive effort at all.

Second, by creating money out of thin air to grant consumer credit, banks are fostering a huge unbalance in the market for goods and services, fostering overall inequality, and devaluing householders' savings (i.e., reducing the future purchasing power of those who deposit their money in the bank). If consumer credit is granted from householders' savings then banks can collect a risk-free fee for the inter-mediation service. In this instance, the interest rate is what the money market dictates by intersecting its aggregate supply with its aggregate demand. And the savings coming from householders' work effort will be properly remunerated, contrariwise to worldwide current reality.

Third, in this proposed institutional environment, investment is not in peril because there is nothing preventing banks from creating new money to grant credit to producers. In this instance, they will act as a new business partner who enters the enterprise with

purchasing power and management, accounting, or financial knowledge to help the business to succeed. If the business thrives, the bank collects the reward for its well-deserved work. If the business fails, the bank loses nothing for it has entered the business in the first place with money created out of thin air. Note that banks are induced to seek the best business projects at hand, regardless of any other side interest. Only the quality of the investment project and the competency of the bank clerk in identifying them will dictate the bank's success. The higher the number of banks following these guidelines, the better the entire society will be. Positive opportunistic behavior is being induced.

Finally, it is worth mentioning that negative opportunistic behavior is inhibited since there is a ceiling regarding the creation of empty money. If inflation reaches a 5% threshold then banks are inhibited from creating new money out of thin air by the monetary authorities. In this instance, banks must survive by collecting the inter-mediation fee due to the engagement in consumer credit operations and by collecting the wages agreed with the firms to whom they have granted purchasing power, and whose businesses are normally running. If any bank goes bankrupt, nobody loses anything. And the bank clerk will be safely incorporated into a new economic activity. It is an utterly safe environment to live in.

Cumulatively with the material efficiency regarding the productivity reached by using the available resources, this presented institutional environment further propels positive emotions. Positive opportunistic behavior is induced, negative opportunistic behavior is inhibited, and a reward-based system is put to work. Executive power is widespread across the entire society and nobody is ever needing to fear for his or her survival. The former reduces inequality to its natural figures, confining it to the nature of employment. The latter extols the use of intrinsic motivation, defined as the “*inherent enjoyment and satisfaction from the task or its outcome driving an agent to act*” (Besley & Ghatak, 2016, p. 5). Respect and enthusiasm will take the lead.

A few more remarks add a sense of completeness to the explanation of reducing income inequality. First, nowadays, it is protruding an absence of social commitment that allows the economic agents to control emotional decisions. This is notorious in the way that negative opportunistic behavior extends to a range of win-lose competitive endeavors, without too much regard for the remaining members of society. Second, it is also salient a permanent focus in the short-run while entirely missing an understanding of what is the real loss. This mindset is quite explained by research psychology for, as posed by Kahneman (2003, p. 702) “*outcomes that are certain are overweight relative to outcomes*

of high or intermediate probability.” Hence, deploying virtuous economics to reduce inequality is, indeed, an overwhelming task.

Nonetheless, looking again at Figure 21, it is interesting to imagine what promising future have countries that are in the upper right corner (like Namibia, Eswatini, Angola, Botswana, and Colombia) when they are able to reduce inequality in their economies.

The price of inequality can be roughly estimated using the data disclosed by several institutions of untouchable reputation, such as the World Bank or Eurostat (the statistical office of the European Union). Some of these figures are disclosed in Figure 22 and allow for quantifying the price of inequality through two different steps. Firstly, we can put a very interesting estimation for the huge loss that has been endured by the large majority of any country’s population. Secondly, we can resort to Figure 21 to estimate how long it takes for the whole population to increase its living conditions. These estimations help learn how to properly think for winning the economic game illustrated in Figure 4.

Figure 21 provides a very strong clue on how long it takes for the entire population, with no exception, to be enjoying a higher level of welfare than what is happening right now. The slope suggested by the data indicates that a 5% decrease in the Gini Index leads a country to a GDP per capita gain of \$ 21,666.67. Hence, according to his or her current income, even the richest person in a given country can estimate when an improvement in his living conditions above the current standards is going to happen, depending on how fast can the country reduce inequality. Of course, these are rough estimations. Nonetheless, the calculus evidence that the opportunity for a significant overall welfare improvement is being wasted. Furthermore, it is plain that the final result is a Pareto efficient situation.

The first column in Figure 22 represents the highest household income of the bottom 50% of the population. The second column refers to the entire population’s householder mean income. This amount is mainly composed of wages.⁸⁰ The third column refers to the value per capita produced in an economy and encompasses the household income plus firms’ profits. Under the proposed solution to eradicate the inequality coming from uneven executive power, profits tend to zero while wages are maximized. It is therefore plain that, in an economy that chooses to reduce inequality, the large majority of the population of the world’s top ten richest countries will almost immediately triple its individual income.

⁸⁰ The data on household income is composed of wages or salaries, self-employment earnings, social security support, and investment income. Herein, wages or salaries are treated equally as the payment provided by the employer to the employee.

Figure 22. Median income, mean income, and GDP per capita; March 2022

Median Income by Country 2022				
Country	Median Income	Mean Income	GDP Per Capita (PPP) ▼	2022 Population
Luxembourg	\$26,321	\$31,376	\$124,590	642,371
Ireland	\$14,520	\$17,938	\$89,683	5,020,199
Switzerland	\$21,490	\$25,787	\$72,376	8,773,637
United Arab Emirates	\$24,292	\$27,017	\$70,089	10,081,785
Norway	\$22,684	\$25,272	\$70,005	5,511,370
United States	\$19,306	\$25,332	\$65,297	334,805,269
Denmark	\$17,432	\$20,304	\$62,089	5,834,950
Netherlands	\$17,154	\$19,690	\$61,285	17,211,447
Austria	\$18,405	\$20,718	\$60,418	9,066,710
Iceland	\$17,017	\$19,300	\$60,132	345,393

Source: <https://worldpopulationreview.com/country-rankings/median-income-by-country>

Income inequality represents a huge economic inefficiency that is urgent to solve. It carts huge losses in terms of pollution, waste, and people's well-being sacrifice. Figure 22 puts into perspective the potential for both inequality reduction and wage increase in the top ten GDP per capita countries.

10) How to keep the levels of reached economic development?

Progress and setback. Are economic cycles an inevitability? The strong suggestion made by history concerning the observable and unstoppable sequence of booms and slumps is that they have always been there. Marx (1867) documented an impressive stream of economic cycles in England between 1815 and 1863. Later on, in 1929, the Great Depression brought a tsunami of pain and suffering, putting an end to the glamorous economic prosperity of the Roaring Twenties. In 2007, the Great Recession reminded the world that economics is still in its infancy and has a lot of work to do to prove its utility to society. Welfare and opportunity have been intertwined on every occasion but sometimes crossed opposite directions. However, just because it has ever been like this, does it always have to be so?

The explanation of the concept of opportunity, and the deterministic effects of circumstances and executive power on it, enables the economist to relate the individual quest for added value opportunities with the overall final welfare that society is able to

reach. Hence, virtuous economics explains why it has been so and how it can be changed. It is possible to keep the levels of reached economic development but it demands understanding the full range of causes of an economic crisis to clearly identify how to solve this economic issue.

We proceed by identifying the causes of the economic crisis, its theoretical framework, the behavior induced by the institutional environment, and the behavior desired by society.

An economic crisis is a moment of time where society is producing far below total productive capacity and is consuming at an insufficient level to fulfill the needs of the entire population. Hence, by definition, an economic crisis is a period of waste. It is a time of inefficient use of available resources. It is a time of extensive use of “bounded rationality.” It is a time of loss.

The cause of an economic crisis is rarely consensual among economists.⁸¹ Nonetheless, the economist identifies multiple causes of an economic crisis. These are as follows: 1) the withdrawal of money from the economy; 2) a technological innovation; 3) a population decrease; 4) the presence of rampant inflation; 5) a decrease in production; 6) the occurrence of over-investment practices; and 7) excessive savings. However, all can be reduced to the persistence of unbalances in any of the three relevant economic markets. Moreover, the economic disequilibrium is a consequence of how opportunistic behavior is induced by the penalty-based system that runs the global economy. All demand further inquiry to conclude on how to keep the levels of reached economic development.

Equations (28) and (32) put into perspective the effects of reducing money in the economy. Equation (28) poses that $Q_t = M/P$. Hence, when the quantity of money in circulation is reduced, and because prices cannot adjust immediately, the total produced quantity, Q_t , cannot be fully sold. This reduction in aggregate demand forces a portion of production to go to waste. It triggers entrepreneurs’ defensive mechanism of firing a few employees which, in turn, fuels further decreases in aggregate demand. On the other hand, equation (32) displays the tautological relationship between the main four economic aggregates by stating that $M = C + I + S$. Money is used to buy transaction goods, buy investment goods, and save for future purchases. As posed by Keynes, money is held for the transaction motive, the speculative motive, and the precautionary motive. Money has no other use at all. Therefore, $PQ_t = C + I + S$ at all times and, if the available money in the

⁸¹ See Backhouse, R. E. (2014) “Economic Power and the financial machine: Competing conceptions of market failure in the Great Depression” and Kaufman, B. E. (2012) “Wage theory, New Deal labor policy, and the Great Depression: Were governments and unions to blame?”

economy is reduced, then the reduction causes an immediate decrease in either aggregate consumption, aggregate investment, aggregate savings, or a combined decrement of the three aggregates. Afterward, an adjustment occurs until the equality provided by equation (28) is restored.

Considering the contribution of opportunistic behavior to retrieve the economic balance enables us to increase our understanding of the deterministic role of the institutional environment in the final state of affairs. Money is reduced in the economy in two different ways. First, a monetary decision, either arbitrary (coming from the monetary authorities) or not (coming from the regular functioning of the financial system), fosters a reduction in the total quantity of money in circulation. Second, money can be withdrawn from the economy through the tax system if the government does not follow through by either consuming or investing that money in the economy right away. Both constitute negative opportunistic behavior because it decreases overall welfare to the remaining society and induces further negative opportunistic behavior from other economic agents. Specifically, being hindered from selling the entire production, firms either fire a few employees or decrease the selling price of their products. The higher the stiffness of prices, the longer the time the economy needs to reach an equilibrium, for the adjustment will be entirely endured by the decrease in the produced quantities. The subtle and important conclusion that the economist takes from the analysis is that the faster the prices adjust, the smaller the pernicious effects of the negative opportunistic behavior triggered in the first place. In other words, if the markets can be promptly kept in balance then the economy can be free from any economic crisis. And this is fully dependent on the institutional environment at hand.

The role of overall market balance cannot be underestimated. Figure 13 illustrates that maximizing economic efficiency requires a full-employment economy, where firm profits' are zero and the creation of empty money is minimized as much as possible. This type of institutional environment enables any economy to erase the negative effects of the causes of any economic crisis as fast as possible.

Note that under a full-employment economy, where firms can fire employees at will, where wages are freely negotiated between the parties, and where survival worries do not bring darkness into the economic relationships, employers will feel comfortable performing both the reduction in the selling price and the proposition of a wage reduction, even when facing a reduction in the aggregate demand. Moreover, knowing that their survival ability is not at stake too, employees will look for better employment opportunities

to improve their job's compensation, but only to find out that the remaining employers are acting similarly. The assumption that the whole economy acts in a coordinated manner is justified, for the withdrawal of money from the economy cannot let some economic agents unaffected. Finally, if the financial system is set up to allow the money market to work properly then, in the presence of an economic crisis trigger, the entire economy recovers its balance without further ado. Economic efficiency and overall welfare depend directly on keeping the three relevant economic markets in balance.

It is interesting to step up the analysis into the occurrence of positive opportunistic behavior that might precipitate an economic crisis, such as a technological improvement. For instance, consider the situation of a farmer replacing the use of a hoe with a tractor. This scenario enables the farmer to fire a lot of employees if the productivity brought by the tractor enables the producer to do so. The overall farmer productivity increases to the benefit of the entire society that will enjoy more products at lower prices. So, the farmer must do their best to cut production costs, and firing expendable employees is the right thing to do. However, if society is granting a full-employment economy, then these persons will engage immediately in a new professional occupation, precluding aggregate demand from falling. Society needs to welcome every technological improvement but cannot disregard the strength of its aggregate demand.

By this token, the occurrence of either a population decrease or an increase in the economic agents' propensity to save are events that cause a reduction in the economy's aggregate demand. Both lead to a reaction on the supply side of the economy by decreasing production. In our current institutional environment, all propel an unemployment increase that further imbalances the economic markets and severely threatens overall welfare. In the same vein, firms' over-investment practices end up triggering the same economic behavior when the products that the investment was meant to produce are not accepted by the market, and a corrective adjustment is necessary.

Finally, the presence of rampant inflation perpetuates negative opportunistic behavior in an economy based on the penalty-based system (i.e., one that disregards the previous supply of a reward before engaging in punishing practices). Note that, under the presence of frenetic inflation, the expectation that prices will keep increasing in the near future leads economic agents to act in anticipation. This forces firms to increase their selling prices and employers to continuously claim higher wages. From equation (28) we know that $Q_t = M/P$. Since the prices, P , are continuously increasing faster than the quantity of money in circulation, M , does, then the total quantity of goods produced in the

economy, Q_t , is continuously falling. The fall in the total quantities, Q_t , is further augmented by an institutional environment that allows for unemployment to grow, leading the economy's aggregate demand to diminish consistently. And the entire overall welfare is increasingly compromised.

But rampant inflation can only be truly caused by the ongoing creation of empty money. Equation (28) poses that $P = M/Q_t$. If the production of empty money is on hold, then the continuous reduction in the total quantities produced can be stopped by simply getting the economic agents back to work. Even in complex situations regarding the reduction in productive activities, like the one exhibited by Venezuela, the process must know an end, or else the population starves to death. In 2021, Venezuela's inflation rate hits a surprising 686.4% annual figure but demonstrates a significant improvement from 2020, when it has hit 2,959.8%.⁸² The economy restores at once the path of progress when economic agents retrieve their usual activities and the miscreation of empty money is prevented.

We can, therefore, conclude that opportunistic behavior is induced in two very distinctive ways when the institutional environment that rules the economy is granted on a penalty-based system or on a reward-based system. Under a penalty-based system, that disregards the granting of previous rewards to individuals in order to induce positive opportunistic behavior, the persons are forced to endure a significant amount of costs regardless of their supportive capacity to do so. Economic crises are thus finding room to grow bigger for the adjustments in the markets do not occur swiftly. Prices remain inflexible, and the adjustments occur in the markets mainly through quantities. Adjustments are lasting and painful. However, under a reward-based system that ensures a full-employment economy, the adjustments in product prices occur *pari pasu* with adjustments in wages, relieving the economy from social strains. The reward-based system allows for a faster and proper adjustment every time the economy requires one.

Virtuous economics is, therefore, able to eradicate any economic crisis from the face of the Earth. The tremendous losses and suffering inherent to an economic crisis are something that society still needs to learn to eliminate. Humans are boundedly rational individuals who learn how to think. Notwithstanding our limitations, we tend to pursue the optimal solution once we understand what are the groundings of its success. It is plain that once reached, the levels of economic development can be kept forever.

⁸² See the information disclosed by The Economic Times newspaper, English Edition, at <https://economictimes.indiatimes.com/news/international/business/venezuelas-inflation-hit-686-4-in-2021-says-central-bank/articleshow/88780741.cms?from=mdr>

11) How to consistently solve the first ten problems without the need to compromise any one of them?

Overall welfare depends on opportunistic behavior due to its dual nature. Firstly, there is a matter of fact that people can easily improve their immediate living conditions at the expense of others. A simple expropriation act constitutes such an example. Secondly, the offender is often unaware that his or her first action triggers a reaction that will result in self-harm. It is, therefore, easy for a society to engage in practices that decrease overall welfare rather than improve it.

An additional factor of complexity is introduced by the use of material resources. Choosing what to produce, how to produce, and for whom to produce sparks priority concerns, and necessarily triggers conflictual situations among society's heterogeneous members. Moreover, the problems of scarcity, poverty, and inequality are often treated as one single problem. This hinders the possibility of addressing its separate causes and consequences through a proper methodological approach. By being unable to clearly identify what distinguishes these economic issues, society risks adopting a measure to solve one problem while compromising the solution of the remaining. Finally, when the eradication of pollution, unemployment, and inflation, enter the society's concern, they are often seen as irreconcilable goals for their individual solution seems to forcibly damage one of the others.

The economic process is set in motion when human and material interactions are put together to improve overall welfare. However, equation (15) puts forth that the way executive power is exercised is paramount to economic efficiency while equation (34) evidences that it takes an economy where both unemployment and any form of expropriation are zero. Moreover, the equations clarify that the full-employment economy must be secured by the economy's private sector. This means that every government service can function just like the private sector does, and the state infrastructures that become obsolete are easily removed from the inefficient economic activity. Governments and state entities will sell their service, rather than collecting their own income. This poses significant stress on the use of executive power. Because mistaken intuitive thoughts get in the way of what seems to be competing interests of different economic agents, to successfully solve the main ten economic problems, the economist needs a deep understanding of how to get the required arrangement in the institutional environment without disregarding the realm of power.

The extension of the contribution of institutions to secure overall welfare is a topic that has been gradually addressed by economics. North (1991, p. 98) outlines that “the central issue of economic history and of economic development is to account for the evolution of political and economic institutions that create an environment that induces increasing productivity.” The author further notes that cooperation is easier when the human interactions are repeated, the individuals possess complete information about the other player’s past performance, and when there is a small number of players (North, 1991). These attributes act as facilitators of cooperation and provide a clue over how to grant cooperative efforts on a consistent basis. The similarities between a tribal society (where the effect of small numbers leads to deviance and innovation to be viewed as a threat to group survival), a regional economy with bazaar trading (where information asymmetries help to consolidate efforts of clientization), and a long-distance trade (where property-rights are at stake) rest in the absence of voluntary organizations aimed at protecting individuals “against the hazards and uncertainties of such information asymmetries” (North, 1991, p. 104). Hence, institutions that are designed to secure overall cooperation need to widespread the information among society’s members, concede room for innovation and creativity and bring together economic agents that are geographically apart.

In 1997, the world rejoiced with the signature of the Kyoto Protocol to the Framework Convention on Climate Change, hoping that environmental problems brought out by pollution could know an end. In 2015, Rosen (2015, p. 32) argues that “*the Kyoto Protocol was the wrong solution at the right time – not simply inadequate in its scope, but carrying high opportunity costs that derailed global efforts at achieving stable atmospheric concentrations of greenhouse gases.*” Further, the author insightfully poses that “*design failure means that even perfect compliance by all parties would have failed to meet the objectives*” (Rosen, 2015, p. 40). This is a very relevant assertion for, extending the design feature into the realm of the global economic environment, we understand that the institutional environment must be drawn to secure overall welfare. Yet, it is not being successful in doing it.

Understanding the difficulties of raising an adequate institutional environment to foster overall welfare is at the forefront of the economist's worries. In this vein, the help provided to economics by other sciences, such as psychology and sociology, is of utmost usefulness. Psychology, among its many other contributions, disclosed the shape of the value function that enables the economist to acquire a savvy knowledge of opportunistic

behavior's both natures. Sociology, in addition to its many relevant studies regarding culture and its economic effects, has specifically developed the explanation of the role of legitimacy to raise effective institutional structures. Suchman (1995, p. 574) poses that *"legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions."* Moreover, the author argues that organizations seek legitimacy for purposes of continuity and credibility, where society's members are looking for institutions that are meaningful, predictable, and trustworthy.⁸³ Hence, the rise of economic institutions in a society is meant to provide both emotional stability in the face of uncertainty and the reduction of relational costs by structuring the available information into a widely accepted and understandable framework.

One more significant contribution from sociology to economics was given by highlighting the condition for a true engagement between the institution and the society. Suchman (1995, p. 575) states that the organization needs only "make sense" to avoid questioning, but *"to mobilize affirmative commitments, however, must also "have value" – either substantively, or as crucial safeguard against impending non-sense."* This poses "bounded rationality" as a meaningful explanation for answering why has the institutional environment been kept for so long under a penalty-based system.

Finally, the author defines moral legitimacy as the positive normative evaluation of the organization and its activities. In this vein, the institution is analyzed through four perspectives: its consequences, its procedures, its structures, and its leaders. And this gives rise to the emergent role of leadership to trigger an effective institutional change.

Figure 23 skillfully sums up the work of Mark C. Suchman. It helps to provide a feeling about where can economists seek additional contributions of sociology to improve their ability in institutional design.

However, for economics, the problem regarding institutional design is always one of institutional change. This exposition enables the economist to identify the crucial variables that must be taken into account when raising a change in the institutional environment. According to the knowledge disclosed by the literature, the successful institutional

⁸³ Interesting reading on the economic effects of trust to reduce transaction costs and improve economic performance, among many others, can be found at Khan, M.M., Zhang, J., Hashmi, M. S., & Bashir, M. (2010) "Cultural values and economic growth in Asia: An empirical analysis" focusing at the individual level, Uzzi, B. (2002) "Social structure and competition in interfirm networks: The paradox of embeddedness" which focus on the firm's perspective, Chen, R., Cui, L., Li, S., & Rolfe, R. (2017) "Acquisition or greenfield entry into Africa? Responding to institutional dynamics in an emerging continent" regarding infrastructures and factor market development, Gulati, R., Nhoria, N., & Zaheer, A. (2000) "Strategic networks" on social networks and Guiso, L., Sapienza, P., & Zingales, L. (2006) "Does culture affects economic outcomes?" on the societal domain.

environment to safeguard economic development on a consistent basis must exhibit five features: 1) it must be a productivity-inducing environment; 2) it must protect individuals against information asymmetries; 3) it must serve the whole society's interests; 4) it must prove its "value;" and, 5) it must mobilize affirmative commitments. All pose significant challenges and deserve further inquiry.

A productivity-inducing environment is one that, not only is reducing transaction costs but also is fostering positive opportunistic behavior. A continuously productive institutional environment demands a number of characteristics. The effective institutional environment needs to concede room for innovation and creativity. Hence, it needs to provide executive power for the economic agents to take advantage of available opportunities at first sight. This follows the guideline set in equation (15) advocating the pursuit of economic efficiency by providing individuals with the executive power to choose between being employers or employees. Moreover, as evidenced by equation (34) and illustrated in Figure 7, optimal work efforts and maximum productivity can only be reached under a full-employment economy. Finally, the pursuit of economies of scale as outlined by equation (34), either in conjunction with the financial system or not, is a must. An institutional environment that fosters overall productivity is adequate to deal with the problem of scarcity. The biggest challenge posed by an institutional environment that enacts a full-employment economy does not lie in its effects on productivity, but rather if it serves the whole society's interests for it poses a distributive issue. Positive opportunistic behavior is sought through knowledge disclosure, enhanced communication among economic agents, and the easiness of factor mobility. And this requires the proper institutional environment for society to evolve.

The protection of society's members against information asymmetries is something that only institutions can do, for it requires some sort of social organization. Boundedly rational individuals will always take advantage of a short-term opportunity and play the economic game illustrated in Figure 4 without realizing that they are doing something harmful to themselves. This behavior is partially explained by the value function because the gain is immediately perceived by the individual while the loss remains inconspicuously hidden in the future. Accordingly, coercive measures of control need to be implemented to safeguard that information is widely spread across the entire community. Hence, apart from this need of gathering and spreading information that settles a technological issue, the proper institutional environment needs to safeguard that the information is true and

accurate. This poses another defiance regarding its ability to serve the whole society's interests, for those who profit from information asymmetries will question it.

Figure 23. A typology of legitimacy

	Actions	Essences	
Episodic	Exchange	Disposition Interest	Pragmatic Legitimacy
Continual	Influence	Character	
Episodic	Consequential	Personal	Moral Legitimacy
Continual	Procedural	Structural	
Episodic	Predictability	Comprehensibility Plausibility	Cognitive Legitimacy
Continual	Inevitability	Taken-for-Grantedness Permanence	

Source: Suchman (1995) "Managing legitimacy: Strategic and institutional approaches", *Academy of Management Review*

An institutional environment is serving the whole society's interests when it is fostering overall welfare. In the latter sentence, "overall" means that, at the end of the process, every member of society is not only improving his or her living conditions but also securing a better environment for future generations. I argue that the economic institutional environment herein proposed does it. Particularly in what concerns the problem of reducing inequality to its natural value, and comparing with the present moment, it is shown that there is a finite amount of time that sets up a threshold of economic development which grants a welfare improvement to every society member, with no exception. However, "bounded rationality" gets in the way once again.

The association between sociological and psychological concepts enables the economist to identify the crux of the matter. On one hand, sociology poses that the organization must prove its "value" to gather active support across society. On the other hand, psychology highlights that people's views of decisions and outcomes are normally

characterized by narrow framing, a behavior that reflects the structure of the environment in which decisions are made.

Kahneman (2003, p. 706) masterfully explains how this idiosyncratic relation of the individual with the institutional environment triggers a behavior.

“It is worth noting that an exclusive concern with the broad view and with the long term may be prescriptively sterile because the long term is not where life is lived. Utility cannot be divorced from emotion, and emotion is triggered by changes. A theory of choice that completely ignores feelings such as the pain of losses and the regret of mistakes is not just descriptively unrealistic. It also leads to prescriptions that do not maximize the utility of outcomes as they are effectively experienced (...)”

Hence, to prove its “value” the new institutional framework needs to quickly provide positive experiences to those who are holding pernicious executive power.

The institutional environment herein proposed improves overall welfare with no exception, and fosters economic development at the fastest possible pace that humans can engender with the given technology. But that does not mean that those who are now able to print empty money at ease understand how can the newly proposed state of affairs translate into an improvement in their own well-being. By the same token, it is not easy to be perceived as a welfare improvement by those who now live in the comfort of economic rents, the easy collection of taxes, or the luxury of huge profits. However, as is shown by events such as the recent history of Zimbabwe, the levels of crime in either unequal or poor countries, or the prevalence of a panoply of competitive events, like wars and trade embargoes, we are all living quite worse than what is possible to do. The world records huge and painful losses. Nevertheless, engaging in the economic game illustrated by Figure 4 is the tendency of the boundedly rational decision-maker.

Consequently, to mobilize affirmative commitments among those who have the responsibility to raise an economic institutional environment that grants a reward-based system, society needs to deeply understand what is at stake. And the complexity of economic affairs leads the non-economist to avoid cognitive strain by trying to reach solutions that are satisfactory rather than optimal. Hence, the non-economist resorts to strategies of short-term self-interest preservation while unaware that he or she is engaging in negative opportunistic behavior. That is why it is not possible to raise an institutional change unless society chooses to escape from the penalty-based system to embrace a reward-based system.

History proves that this is an overwhelming task. For instance, despite both Adam Smith and David Ricardo having explained that no country must produce what it can cheaply import from others, the use of tariffs remains worldwide regardless of the harm it does to overall welfare. A bit surprisingly, in the twenty-first century, economists are still trying to conclude on trade openness adequacy. The cause of the embarrassment is related to how opportunistic behavior is channeled.⁸⁴ Under our current economic institutional environment, answering what to produce, how to produce, and for whom to produce cannot be dissociated from who holds executive power at the global level. Similarly, Rosen (2015, p. 43) adds some wood to this fire by highlighting that, the Kyoto Protocol, rather than inducing firms to experiment with policies and pinpoint best practices, created opportunities for companies to “*seek profit in the carbon market.*” Human history displays an extensive list of actions harmful to the global society perpetrated by those who hold executive power with selfish motivations and “bounded rationality.”

By the same token, to the non-economist, eradicating inflation seems to be impossible to harmonize with a full-employment economy. First, a full-employment economy means a wage maximization institutional environment where profits are zero. Many existing entrepreneurs do not realize that profit is actually rewarding their work efforts and is nothing more than their well-deserved wages. Although the non-economist cannot understand it, this wage will significantly increase under a full-employment economy. But the unbalanced executive power will throw “sand into the wheel” when discussing the possibility of enacting a full-employment economy. Second, the economist knows that prices cannot climb above the aggregate demand curve just as long as society chooses to keep producing the same quantities. But the non-economist does not. And he or she is afraid of losing purchasing power. Kahneman (2003, p. 699) poses that “*a core property of many intuitive thoughts is that under appropriate circumstances, they come to mind spontaneously and effortlessly, like precepts.*” Hence, despite enacting a full-employment economy being the right thing to do to ensure overall welfare, “bounded rationality” acts as a barrier. Both, uneven executive power and “bounded rationality” severely impair economic development.

⁸⁴ For instance, regarding the theme of economic openness, Montalbano (2011) argues that the literature shows that “man made” external shocks caused by policy reforms leaves poorer households both less protected against adverse effects and less prepared to take advantage of positive opportunities than richer ones do. Further interesting reading on trade openness are, among many others, Squalli, J., & Wilson, K. (2011) “A new measure of trade openness” and Ulaşan, B. (2012) “Openness to international trade and economic growth: A cross-country empirical investigation.”

How to consistently solve the first ten problems without the need to compromise any one of them is a question that has a two-fold answer. Firstly, under a strictly economical view, it simply requires the three relevant economic markets to be kept in balance at all times under a reward-based system. Secondly, considering the psychological framework that leads humans' intuitive behavior into a given illogical path, it requires installing "doubt" across society. The latter demands an additional explanation.

Indeed, psychology explains that when humans reason, the process encompasses a number of features. It is slow, serial, controlled, effortful, rule-governed, flexible, and neutral. This process differs from the decision system based on perception and intuition. The latter is fast, parallel, automatic, effortless, associative, slow-learning, and emotional. These differences help the economist to understand what it takes for a boundedly rational individual to step up his or her economic knowledge. It is worth outlining that the decision system based on perception and intuition is triggered before the individual is able to start reasoning on the subject. Psychologists pose that doubt is a phenomenon of the reasoning system, "*a meta-cognitive appreciation of one's ability to think incompatible thoughts about the same thing*" (Kahneman, 2003, p. 702). Psychologists have found that the accessibility of statistical information to the individual's mind is slow. However, they have concluded as well that the process can be enhanced by providing stronger cues to the relevant rules and by extensive training in applied statistical reasoning. In fact, just like so many riddles teach us, humans learn how to think. But it requires a given dose of humility for a person to hypothesize that he or she might be acting wrong by relying on perception and intuition. Hence, explaining how and why a reward-based system overcomes a penalty-based system regarding economic matters is the second step toward enabling the enactment of an institutional environment that consistently solves the above-mentioned ten economic problems without compromising anyone of them. Indeed, this overall emotional control is crucial for proper economic reasoning and it comes associated with keeping the three main economic markets in balance.

Consistency, however, poses a significant economic problem. Consistency means that the main ten economic problems remain solved over time under a given institutional environment. But there are a number of economic changes that trigger a need for adaptation. These changes foster economic unbalances which the institutional environment must properly deal with.

Economics identifies at least five natural sources of economic instability. These are: 1) scarcity of material resources; 2) technological changes; 3) social changes; 4) changes in

consumer preferences; and, 5) the benefits of diversity. It is thus mandatory to inquire about the strength of the institutional environment to adequately address the hardships raised by these issues.

First, addressing the problem of the scarcity of available resources poses simultaneously a problem of quantity and a problem of priority. For instance, the shortage of fresh water in a given geographical location might be sparked by a polluting event, causing a sudden need for material and human resource reallocation. The proper institutional environment needs to enact anticipating steps to properly answer these kinds of requests. In this instance, the higher the autonomy that is given for economic agents to act adequately, the higher the efficiency of the institutional environment.

Second, technological changes, arising from training, increased know-how, and innovation, always spark unbalances in the three relevant economic markets. The proper institutional environment allows these adjustments in the labor market and in the market for goods and services to occur promptly and swiftly, without the need for arbitrary manipulation. Opportunistic behavior is channeled into a positive mode, and the technological disturbance does not stop economic progress.

Third, social changes, such as income variations, age, or migratory flows, cause unbalances in the three relevant macroeconomic markets. The proper institutional environment must smoothly address these changes, effortlessly, according to existing needs. It is not possible to ignore its occurrence over time. However, there are a huge number of economic solutions for the challenges raised by these kinds of changes that extend far beyond the savings solution. Usually, either because they do not understand the role of money in macroeconomic terms or because technological restrictions do not allow them to do differently, politicians tend to enact a binding social fund, raised with a portion of the population's savings, to face the necessities brought out by these social concerns. The proper institutional environment to address these issues does not need to impose a cost on any generation beyond the exact social requirements.

Fourth, changes in consumer preferences, such as those brought out by social fashion shopping, exhaustion, satiety, or buffer-stock behavior,⁸⁵ all trigger changes in the relevant economic markets. The proper institutional environment allows the economic agents to adapt to these changes swiftly, effortlessly, and with no need for manipulation whatsoever.

⁸⁵ See Carroll, C. D. (1997) "Buffer-stock saving and the life cycle permanent income hypothesis."

The last identified source of natural disturbance in the economic markets is related to the incessant search for product diversity.⁸⁶ Economics is aware that individuals engage in monopolistic competition, trying to find a market niche where they can maximize profits. This mindset engenders innovation and, consequently, economic development. Hence, it fosters positive opportunistic behavior for it brings the benefit of product diversity to society and it further improves the individual's welfare if the behavior is replicated by others. Nonetheless, it introduces unbalances in the relevant economic markets which demand attention. The proper institutional environment provides executive power across society, enabling the economic agents to naturally produce the adjustments that impose.

The institutional environment herein proposed when explaining how to solve the first ten main economic problems, and mainly suggested by equations (15), (28), (32), and (34), is adequate to establish the normative guidelines of this successful socioeconomic organization. However, there is a strong need to complement it with microeconomic and macroeconomic analysis regarding specific local or regional needs to set up the human and material interactions that efficiently restore the economic balance. Normative economics sets the scope for positive economics, but it is always microeconomic idiosyncrasies that give rise to macroeconomic outcomes. The proper measures to develop an economy like Ethiopia are necessarily different from the adequate measures to develop Zimbabwe. Those are two different starting points, holding two different baskets of material and human resources. Nonetheless, they both have to be concerned about setting up an institutional environment that ensures a reward-based system.

By definition, a reward-based system ensures a reward to every member of society in the first place. Herein, I propose the enactment of a full-employment economy, where any individual is able to choose between being an employer or an employee, according to his or her best judgment. Equation (34), in compound with equation (15), evidences that this is an institutional environment's productivity optimizer feature. The survival of any individual, with no exception, is secured. This institutional environment leaves no one to starve, be homeless, or be forced to engage in an unappreciated economic activity.

Secondly, a reward-based system distributes executive power across the whole economic agents. In an economy, executive power is synonymous with purchasing power. By reserving the possibility of empty money creation to provide purchasing power to producers only, the society grants that purchasing power is provided to every good business idea. Moreover, by removing the use of collateral when granting credit, society is

⁸⁶ See, among many others, Dixit, A. J., & Stiglitz, J. E. (1977) "Monopolistic competition and optimum product diversity."

ensuring that every good business project will be supported regardless of the number of assets held by the promoter of the investment. Executive power is equally spread all over society. People have value for their merits rather than for their assets. Actions of deception, betrayal, and power disputes rest useless when applied to business circles. Conversely, respect and enthusiasm take the lead because payoff consistency is granted over time, according to the work that each person decides to put into the economic activity of his or her choice.

The bottom line of this exposition is that not only there is a need to install a reward-based institutional environment in order to safeguard that the ten main economic problems are solved but, due to the fact that regular economic activity produces the need for adaptation, there is also a need to continue monitoring the institutional environment's adequacy for granting consistency. And this sets the outstanding contribution of virtuous economics to overall welfare.

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When to adopt virtuous economics?

Answering “when” is about doing the right thing at the right time. The answer is often non-intuitive for the right thing to do might be advisedly delayed. And the reasons to hold back from doing the right thing right away deserve close attention.

The institutional environment to foster overall welfare on a consistent basis is herein presented through a set of equations that identify the most crucial aspect of a successful economy: the ability to channel opportunistic behavior into a positive mode. This institutional environment is the right thing to do because it settles a reward-based system economy.

The reward-based system always presents a significant economic improvement in relation to the penalty-based system. It fosters both a reduction in the potential gains of information asymmetries due to the reduction of the future reward in case of default and a decrease in the economic transaction costs due to significant relief of the costs of negative opportunistic behavior inhibition. Moreover, the reward-based system is the most effective organization to induce positive opportunistic behavior.

Regarding virtuous economics, the right thing to do encompasses a number of specific measures: 1) the eradication of any form of expropriation – i.e., safeguarding property rights; 2) the enacting of a full-employment economy – i.e., the eradication of poverty; 3) the eradication of both the creation of empty money to grant consumer credit and the use of collateral in any credit operation – i.e., the eradication of artificial inequality; 4) the security that the creation of empty money occurs under the effective control of the monetary authorities and is used to grant producer credit only – i.e., maximizing the potential for economies of scale while eradicating the evil of inflation; and 5) the consecration of executive power equally distributed across employer and employee – i.e., ensuring the economy’s maximum efficiency. Herein, it is shown that this institutional environment is significantly more effective to foster overall welfare than the penalty-based system upon which the global economy currently abides. Hence, the right thing to do directly depends on reaching the aimed positive consequences.

The practical examples for evidencing how the reward-based system surpasses the penalty-based system are countless. However, for instance, we can take the outcome of dealing with the social loafing problem as an exemplification of the higher efficiency of a reward-based system.

Specifically, in an economy where full employment is ensured and executive power is widely spilled over the community, every citizen can work while earning the maximum possible wage for the activity of his or her choice. If the individual rather chooses to engage in loafing practices, then the employer fires him or her at once. In this stage, a decrease in the reward applies, and the individual immediately engages in a new workplace at a loss regarding his or her wage. Consider the possibility of a 5% reduction in the new salary every time the individual is fired. In the second job, the person is reasoning in terms of how much is he or she losing by having been fired in the first place and, without the need of having somebody with a whip nearby, the worker begins to be focused on a good performance on his or her own. Positive opportunistic behavior is induced while negative opportunistic behavior is inhibited. Both production and transaction costs are reduced while productivity increases. This is an overall outcome that a penalty-based system cannot reach.

Another very important result of an economic environment based on reward is that society does not suffer when the economy calls for adjustments. Particularly, if a forced adaptation is triggered, for instance through a technological change, resource reallocation occurs with no need to decrease the overall aggregate demand in the market for goods and services. In turn, the economic balance is safeguarded in the three relevant economic markets: the market for goods and services, the labor market, and the money market. Circumstances might change, but prosperity is protected at all times. Currently, the global society is unable to do it.

Another fruit of an economic institutional environment that is consecrated by a reward-based system is a deeper respect for property rights. Property rights have many forms, of both material and immaterial nature. Those of a physical kind are the ones that are currently fiercely protected under the general legal framework enacted worldwide. And, as Besley & Gathak (2010) so skillfully show (see equation (9)), the amount of expropriation, taxation, or stealing, in an economy must be zero for an individual to optimize his or her work efforts. Those of immaterial essence, like know-how and intrinsic motivation, are often disregarded or insufficiently taken care of. However, as it is shown by equation (13) the work effort of the employee also depends on the portion, β , of the value of his or her labor that is taken away by the employer, and this only tends to zero if a full-employment economy is enacted. The respect for the property, of either material or immaterial nature, is herein extolled, and regarding every resource, what matters is not

who owns what, but rather how property is held. Furthermore, that applies equally to land, trademarks, copyrights, know-how, or work effort potential.

Hence, in view of the above, I argue that the most efficient economy cannot exist unless a reward-based system is wittingly adopted.

All of the explained thoughts and consequences easily escape the domain of perception and intuition. The average citizen cannot effortlessly understand how and why the enactment of a full-employment economy permanently eradicates the possibility of the occurrence of any economic crisis. By the same token, the non-economist cannot understand how and why the eradication of using collateral in credit operations is crucial to safeguard equal executive power across the community, or how and why the creation of empty money to provide consumer credit sparks the huge devaluation of his or her own savings. Notwithstanding that the right thing to do depends on the consequences that can be reached, the acceptance of its implementation across society depends on being widely understood. Otherwise, any effort to adopt a new form of organization is doomed to be rejected by society. The right thing to do requires legitimacy before it can be successfully deployed.

What history tells us in this realm is particularly useful to identify when it might be the right time to raise an economic environment grounded on a reward-based system.

Any change proposal presents a threat to the status quo. The awareness of a threat is, itself, welcome, for it allows humans to protect against uncertainty. However, this protection can be reached by transforming uncertainty into risk, which is something that an economist can do but the average citizen most certainly cannot. Usually, the average citizen reacts by relying on his or her perceptions and intuitions. The common citizen does not possess a wider understanding of economic subjects and often resorts to a decision-making process based on prejudice over these matters. Durrheim, Quayle, & Dixon (2015, p. 28) pose that *“the nature of “prejudice” is produced in identity performance and collective struggles that express creditable ways of being and acting.”*⁸⁷ Hence, one cannot disregard society’s most intimate feelings before intending to introduce a change in the way an entire community takes action and expresses itself.

A shaking example of how perception and intuition take precedence over rational thoughts is provided by the “Monty Hall” riddle.⁸⁸ Maurice Halperin was Monty Hall’s real

⁸⁷ See Durrheim, K., Quayle, M., & Dixon, J. (2015) “The struggle for the nature of “prejudice”: “Prejudice” expression as identity performance.”

⁸⁸ See <https://ima.org.uk/4552/dont-switch-mathematicians-answer-monty-hall-problem-wrong/> and get a glance at https://www.youtube.com/watch?v=pvNXm_5kLmo.

name. Monty Hall was the host of a TV show named “Let’s Make a Deal” that aired from 1963 until 1986 in the United States. The host presented several games to his audience who were allowed to choose between holding the prizes in their hands or the ones existing behind three doors. However, the Monty Hall riddle hit the spotlight in 1990 when Marilyn vos Savant, in her column called “Ask Marilyn” in the popular magazine named “Parade,” answered a question posed by one of her readers. This problem became known as the “Monty Hall” riddle.

The problem is the following:

The “Monty Hall” riddle:

Suppose you are on a game show, and you are given the choice of three doors to collect the prize behind one of them. Behind one door is a car and behind each of the two other doors is a goat. The game evolves as follows:

- 1) You pick a door;
- 2) The host opens one of the two doors which has a goat behind;
- 3) The host asks you if you want to change from your prior choice.

Is it to your advantage to take the switch?

This very simple problem magnifies how humans’ “bounded rationality” conditions the decision-making process. On a step-by-step approach, it is easy to identify what is the correct answer, which, just like what has happened in the “Pirate”’s riddle, is not intuitive. To a normal human being, the correct answer is almost impossible to reach effortlessly.

On one hand, because the player’s final situation is to be staring at two doors which he or she knows that one is hiding the car and another has a goat behind it, the player is led to believe that he or she is having a 50% chance of winning no matter what his or her final choice will be – i.e., the player is thinking that it is indifferent to make the switch or not. In this instance, perception betrays the decision-making process. On the other hand, the choice provided by intuition is to stay loyal to the initial pick. Some players even say that they must stay with their “gut feelings.”

Figure 24 displays all possible outcomes considering either that you take the switch or that you do not.

Marilyn vos Savant wrote in her column that not only it was in the interest of the player to take the switch but also that the player would double his winning probabilities by doing so. Looking at Figure 24 it is easy to see that by choosing to keep his or her initial

pick, the player has only one chance of winning out of three possibilities, while by always changing from his or her initial choice the player enjoys two chances of winning out of three. What escapes human perception and eludes intuition is that the final stage of the game is winning once out of three doors, by picking the right door in the first place or winning twice out of three doors by picking the wrong door in the first place and switching it with the right one.

Figure 24. Explaining the solution for the “Monty Hall” problem

		Doors and Prizes			Game result
		Car	Goat	Goat	
Option1 Don't switch	Player pick	Door 1	Door 2	Door 3	
	1	1	X		Car
	2		2	X	Goat
	3		X	3	Goat
Option2 Switch	Player pick				
	1	1	X	3	Goat
	2	1	2	X	Car
	3	1	X	3	Car

'X' The door opened by the host showing the goat behind.

Source: Author's own creation.

However, what is truly relevant to the herein exposition is the social reaction that was triggered by Marilyn vos Savant's article in the magazine named “Parade.” In fact, oodles of criticism came out, even from the least expected sectors of society, mathematicians and university professors. Thousands of complaint letters against the answer were sent. Marilyn confessed that nine out of ten readers completely disagree with her reply to the reader who first posed the problem. It is amazing that, despite the problem's simplicity, it took from September 9, 1990 (the day of the answer's publishing) to the Summer of 1991, for the United States population to start realizing that Marilyn vos Savant was right. Meanwhile, she wrote two additional articles detailing the solution – the last one on February 17, 1991. Notwithstanding her efforts, the country just seemed to be starting to move away from emotionally driven thoughts after the strong support of John Tierney, from the New York Times, who wrote on her side on July 21, 1991.

If such a social upheaval can happen over a simple and inconsequential problem to the community like the “Monty Hall” problem, then what reactions can we expect when presenting a proposal that is harder to understand, that wide spreads executive power

across the community, and that is of greater importance to overall welfare? Therefore, regarding economic affairs, it is mandatory to inquire about the global society's usual delay to do the right thing.

In June 1919, after the First World War ended, John Maynard Keynes was the official representative of the British Treasury during the negotiations of the terms of the draft of the Treaty of Peace. In the aftermath of his participation in the event, the author so eloquently wrote the following alert in the first paragraph of the introductory note of his book “The economic consequences of the peace.”

“The power to become habituated to his surroundings is a marked characteristic of mankind. Very few of us realize with conviction the intensely unusual, unstable, complicated, unreliable, temporary nature by which Western Europe has lived for the last half-century. We assume some of the most peculiar and temporary of our late advantages as natural, permanent, and to be dependent on, and we lay our plans accordingly. On this sandy and false foundation, we scheme for social improvement and dress our political platforms, pursue our animosities and particular ambitions, and feel ourselves with enough margin in hand to foster, not assuage, civil conflict in the European family. Moved by insane delusion and reckless self-regard, the German people overturned the foundations on which we all lived and built. But the spokesmen of the French and British people have run the risk of completing the ruin, which Germany began, by a Peace which, if it is carried into effect, must impair yet further, when it might have restored, the delicate, complicated organization, already shaken and broken by war, through which alone the European peoples can employ themselves and live.”

Further, in the last paragraph of the fifth chapter, the author outlines his worries.

“I cannot leave this subject as though its just treatment wholly depended either on our own pledges or on economic facts. The policy of reducing Germany to servitude for a generation, of degrading the lives of millions of human beings, and of depriving a whole nation of happiness should be abhorrent and detestable – abhorrent and detestable, even if it were possible, even if it enriched ourselves, even if it did not saw the decay of the whole civilized life of Europe. Some preach it in the name of Justice. In the great events of man’s history, in the unwinding of the complex fates of nations Justice is not so simple. And if it were, nations are not authorized, by religion or by natural morals, to visit on the children of their enemies the misdoings of parents or of rulers.”

Hence, John Maynard Keynes, in 1919, posed a quick notice of the potential danger of the economic circumstances that were being woven through the terms of the peace negotiations. Indeed, as we know now, by squeezing the economic room left for Germany to thrive, the Versailles Treaty was, in 1919, the first stone of World War Two.

Notwithstanding the warning, it took 28 years and a second awful war for the world to avoid repeating the error.

The world's greatest economic crises pose another example. In 1929, the cause of the Great Depression was the huge reduction in the quantity of money in circulation which was engineered by the United State's central bank in August 1929, well before the stock market crash of October 1929. The awareness of the perils of reducing the money in circulation is now more prevalent, and the error has been made with a lot more caution by the monetary authorities. Accordingly, at the beginning of the twenty-first century, during the Great Recession, rather than reducing the quantity of money in circulation, as happened during the Great Depression, the aggregate monetary M2 rose by 65% during the Great Recession.⁸⁹ Humans learn how to think. Yet, it takes time.

The world is still living under a penalty-based system for a significant portion of the population is not granted a reward for its work efforts. Contrariwise, the same portion of the population can be sure of being punished if acting in any way that might reduce the executive power of the status quo. Hence, despite implying a welfare improvement for everybody, with no exception, the question is how much time does society need to legitimate economists' findings and deploy a reward-based institutional environment?

It took centuries for the world to finally accept that Earth is round. But communication and knowledge sharing are now happening at a must faster pace. In regards to economic matters, the right time will come when society gathers the conditions to do the right thing.

Society needs to exhibit conditions for settling committed efforts, grounded on foundations of mutuality, proportionality, credibility, and long-term orientation (Gundlach et al., 1995). It is required to have a base of disclosure of what is a reward-based economic environment and what it means to overall welfare. It is necessary to have a widely shared vision of our global society as well. A clear and common picture of the desired future is the glue that sticks us all together in the long run. Moreover, it is mandatory to quantify the costs of do not do it. The costs of keep living under the penalty-based system we depend upon can be measured in terms of climate changes, overall pollution, disturbance of social peace, mental health, and lost productivity. This new socio-economic environment establishes a number of welfare improvements that need to be firstly understood to be appreciated later on. When is the world going to meet such conditions?

⁸⁹ See Duca (2017) "The Great Depression versus the Great Recession in the U.S.: How fiscal, monetary, and financial policies compare."

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Who must be responsible for the economy?

The question of who must be responsible for the economy poses a problem that raises too many excuses for finding the optimal solution. First, the economy is such a complex matter that requires expertise to be properly dealt with. But the economist's advice is scathingly disregarded. Second, politicians are the ones holding regulatory power and access to international organizations. Consequently, politicians are the ones in condition to foster any significant change. However, politicians depend upon public opinion and, accordingly, they sway their legs according to the individual interests of their voters or financiers. Contrariwise to the essence of virtuous economics, politicians are rarely focused on ensuring overall welfare. Third, as we have seen above, society can only legitimate an institutional change after having been able to overcome the hardships of bounded rationality. The bottom line is that society ends up quite empty of an entity that can firmly helm the economy. Accepting the responsibility for the economy is a too heavy burden.

The candidates for holding the responsibility for economic affairs are thus reduced to a small range of possibilities: the international organizations, the government, the political parties, every institution at the national level with political influence, the economists, and, ultimately, some anonymous individuals of society. One can scrutinize each potential candidate to identify the pros and cons of the suitability of being held responsible for the economy. Hence, since the economy is an over-complex matter and finding the right person for the task is not straightforward as it could seem at first glance, it is important to situate this analysis under a tight connection between theory and practice.

In order to be effective, the right person for the task needs first to be able to enlighten his or her immediate audience to gather for additional support later on. According to Suchman (1991, p. 578) *“audiences often react as though organizations were individuals – possessed of goals, tastes, styles, and personalities”* [where] *“constituents are likely to accord legitimacy to those organizations that have “our best interest at heart,” that “share our values,” or that are “honest,” “trustworthy,” “decent,” and “wise”.*” The author labels this type of legitimacy as “pragmatic,” considering that a widespread belief in an organization's good character facilitates its acceptance (see Figure 23). Pragmatic legitimacy rests on judgments about whether the activity benefits the evaluator – if “they are good persons, they are probably doing the best for me.” Therefore, if the person that

embraces the flag for the deployment of a reward-based economy is coming from such a noteworthy institution, the likelihood of his or her success increases.

Following the guidelines provided in Figure 23, for gaining legitimacy the idea also needs to be the “right thing to do.” This moral effort is going to be evaluated by the person’s audience in terms of consequences, procedures, structures, and leadership. The person that is going to be held responsible for the economy must deeply understand what it entails the deployment of a reward-based economy and be able to persuasively explain it to the remaining society. Hence, the successful leaders of this project need to be charismatic individuals.

Finally, cognitive legitimacy outlines that, to be legitimated, the idea “*must mesh both with larger belief systems and with the experienced reality of the audience's daily life*” (Suchman, 1991, p. 582). This sets an intimate link between the individual deep acceptance of the things that have “always been this way” and the ingrained group set of beliefs, attitudes, and behaviors that are commonly emanated by any member of a given community. In this instance, holding the responsibility for the economy might present a need for breaking with the status quo. This always presents a significant challenge “*for things to be otherwise is literally unthinkable*” (Suchman, 1991, p. 583). Hence, the right persons to be held responsible for the economy must be brave.

The right individuals for the job must be able to gather legitimacy at the global level. These persons must be aware of the steps required to acquire the three types of mentioned legitimacy: pragmatic, moral, and cognitive.

Additionally, regarding the question of who must be held responsible for the economy, a striking doubt emerges: is this an individual responsibility or a collective one? On the one hand, the economy is a too complex and important subject to be trusted to a single judgment. On the other hand, the economy’s permanent demand for adaptation requires the absence of malefic moorings between the economic outcome and the economy’s major pilot. This approach poses a crucial focus on society’s ability to blend individual and collective goals while safeguarding every person’s integrity.

The distress is better understood with a more mundane example. For instance, consider the question of who must be held responsible for a child’s growth and education? One might pose that their parents are the ones to be held responsible for ensuring that their children are growing well. But are they prepared to do it? Given the complexity of the matter, maybe psychologists must be even more liable than the children’s parents, and it might be equally suitable to bring every school teacher into the equation. The example

emphasizes how interdependent the global society is. This interdependency acquires even more meaning in the economic realm when human and material resources are put together to deliver optimal welfare levels.

Intuitively, in the economic realm, people might be led to believe that both individual and collective goals are better understood by economists. Yet, contrariwise to intuitive thoughts, being an expert in a given field is not sufficient to be held responsible for any task implying social exposure. A disconcerting example of such a state of affairs is provided by Monty Hall's problem. Indeed, in 1990, Marilyn vos Savant was considered to be the woman with the highest IQ in the world. Nonetheless, despite the exactitude of her solution to Monty Hall's problem, a huge percentage of the United States population did not legitimate the explanation. Legitimization arrived quite later on, under the support of some relevant social actors who corroborate Marilyn vos Savant's conclusion. Therefore, despite the fact that economists must be at the forefront of the crowd who support a reward-based economic system, they are not enough to make it happen on a consistent basis.

In the face of the above, I argue that the responsibility for the economy is, right from the start, an individual responsibility that cuts across society as a whole. However, the existence of idiosyncrasies, such as expertise dependence and bounded rationality, demands society to diligently find out who must be held responsible for the economy. Firstly, economists need to disclose their knowledge and make sure to be carefully listened to by the global audience. Secondly, worldwide charismatic leaders of global institutions must bring the theme of institutional economics into the spotlight. Thirdly, every person needs to step up their economic knowledge and wisely legitimate the person and/or the institution that must be held responsible for the economy. We all are responsible for the economy, but we still need to raise proper structures to look after it.

We are aware that bounded rationality always induces intuitive thoughts to be preceding proper reasoning. However, "doubt" is cogitation that can only happen within the intelligent seeking of a solution,⁹⁰ and far away from "intuitive certainties." The person who must be held responsible for the economy is someone who can enable society to be safe against harmful rigidity when innovation can take us far further. Accordingly, the right person to be held responsible for the economy must hold a deep economic knowledge, must hold a relevant political status, and must be skillful enough to effectively communicate with his or her audience the basis for doubting.

⁹⁰ See Kahneman, D. (2003) "A perspective on judgment and choice: Mapping bounded rationality."

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Question mark

Economics is extremely important science to mankind. Economics concerns the systematic study of human and material interactions to ensure consistent overall welfare improvement. This work deals with a number of questions. What economics is all about? Why is economics so important? How can economics make a difference? When can economics make a difference? Who must be held responsible for the economy? And, why does not society legitimate the economist's advice since economic interest is, indeed, the interest of every human being? Yet, there is one last question to which we do not know the answer.

Economics belongs to the category of social sciences. In this realm, it is paramount to identify the exact positioning of economics in comparison to other sciences. Economics distinguishes itself from management. Within the management domain, the focus is on optimizing the use of available resources to acquire a competitive advantage and safeguard specific individual interests. Overall interest acquires a secondary role for the manager. Economics stands out from sociology because the sociologist is particularly focused on human interactions and their effects on overall welfare while considering secondary concerns on how mankind uses material resources. While management tends to embrace a material perspective, sociology tends to deal almost exclusively with the collective outcome of multiple human interactions. Economics acquires a position that does not overlap with either sociology or management but rather learns from both of them and raises a rational and objective knowledge to secure overall welfare.

In addition to the crucial contribution from management and sociology to the economic field, there are other sciences adding significant assistance to stepping up economics. Some of those might overlap, here and there, such as political science, accounting, history, anthropology, and so many others. All are important for the economist.

Contrariwise to the remaining, economics cannot exist without the other sciences. In fact, managers focus on satisfying individual interests and, accordingly, on how to take out the full potential of a given resource. Sociologists, in turn, can identify the most effective institutions to reach a given social goal. Economists need to use their combined knowledge to identify the best economic environment to properly deal with the available circumstance. Only economics deals with the concept of opportunity under such universal scope.

Economics cannot succeed without the knowledge provided by exact sciences either. The economist uses the information mainly provided by the other sciences, whether the knowledge is coming from social sciences or exact sciences, and transforms it into a sensible and, yet, unbiased, knowledge meant to deliver overall welfare.⁹¹ In this vein, economists use mathematical techniques to draw models anticipating reality, reckon accelerations and variations, make projections, analyze data, and prove the accuracy of their conclusions. Statistics crucially assist economics by allowing to transform incommensurate uncertainty into measurable risk. Physics, biology, geology, and every science that enables the economist to better deal with and understand the physical environment furnishes another piece of valuable knowledge. Finally, law practitioners assist the economist in structuring an effective and simple regulatory framework aimed at harmonizing economic interests.

Virtuous economics becomes a challenging goal to reach. The economic foundation of a society is taken for granted. The idea of changing this structure always raises instinctive individual fears that, in turn, spark spotlights of resistance to change. Despite its power to deliver a trustable social environment, where joy, self-esteem, achievement, and respect can be underpinning mankind's behavioral standards, the likelihood of an economist's proposal being rejected is very high. Notwithstanding the troubles involved, virtuous economics starts by dealing with the normative side of human activity.

Virtuous economics is about channeling opportunistic behavior into a positive mode. The role of normative economics in setting up the proper economic environment is about inducing the individual behavior that improves a person's well-being and that further uplifts the individual's welfare if this particular behavior is replicated by others. Accordingly, the economist needs to identify the multiple institutional environments that can be raised to pick the one that optimizes overall welfare.

Virtuous economics is not a subjective matter. Virtuous economics poses quite objective scenarios that can be quantified and that need to be submitted to the overall analysis, rather than to overall discussion or debate. However, economic advice is usually taken as something aside from the right solution; and history has shown that decision-makers do not thoroughly consider the economist's expertise as a primary option. This poses a very important and additional distinction between economics and the other sciences – i.e, economics needs to simultaneously explain what is the right thing to do, and why it has not been done yet.

⁹¹ Otherwise, it will be something different from economics.

Herein, it is explained the different powers of two separate economic systems to channel opportunistic behavior into a positive mode: the penalty-based system and the reward-based system. Evolving from the penalty-based system, that society takes for granted, into a reward-based system that equalizes executive power across society, is something particularly scary for the status quo. Human bounded rationality leads us to play the economic game illustrated in Figure 4. And escaping from emotionally driven decision processes cannot be done effortlessly.

The concept of bounded rationality has been acknowledged in the economic realm for decades, but only recently has known significant improvements driven by psychology. Psychology has brought fundamental knowledge to economics, which is particularly outstanding with the explanation of the value function. Indeed, by proving that humans are risk-averse in the domain of gains, and risk-takers in the domain of losses, presenting the two functions with a 2 to 2.5 difference in steepness, psychologists supplied economists with the most important tool to understand how to channel opportunistic behavior into a positive mode. A tool that enables an objective quantification rather than a mere subjective assumption. Moreover, by mapping the determinants of bounded rationality, psychology assists economics in explaining both the strengths of our existing economic organization and the natural shortcomings humans need to overcome. Particularly, by enabling the economist to situate payoffs and utilities within a range which is narrow enough to accurately predict human behavior, psychology has finally enabled economics to explain why it is still lacking legitimacy. The inescapable question is: If economics is aware that economic development is fully dependent on the cooperative process then why is society keep living in a competitive mode? Thanks to psychology, economics is now in a position to explain why it is this so.

The unavoidable existence of bounded rationality in every human being provides the cornerstone of our success. As humans, we do things that only humans can do. And that is the reason why a machine can never replace a human being. We make mistakes. We learn from making mistakes. We learn how to think. Each human being, according to his or her specific life experience, makes unique mistakes and seeks equally unique solutions to overcome his or her own faults. The machine cannot do it. Although the machine can approach a decision-making process based on trial and error until it identifies the optimal solution, the machine cannot make heterogeneous mistakes to find heterogeneous solutions.

There are not two equal human beings. Each person, regardless of his or her knowledge or expertise in a given field, will always have something to teach to another. The machine, in turn, does not make mistakes. In case of malfunctioning, the equipment is replaced by a new one, which is exactly the same. To society, the value of a specific machine is almost none. For the development of mankind, the real value of any human being, without exception, is necessarily quite positive.

Virtuous economics happens when economics ensures overall welfare. Virtuous economics occurs when it enacts an institutional environment that safeguards positive opportunistic behavior while inhibiting negative opportunistic behavior. Virtuous economics is yet to be reached.

It is, therefore, crucial to address the reasons that explain why virtuous economics could not succeed previously. Despite bounded rationality largely explaining human mistaken choices, economics still needs to deep dive into the institutional swamp we depend upon and clear the waters of bureaucratically driven inefficiencies.

The main economic problems, such as scarcity, poverty, inequality, pollution, inflation, unemployment, and the occurrence of economic crises can all be solved under a reward-based economic system. Nonetheless, mankind still lives under an inefficient penalty-based economic system.

As it is shown by equation (1), an opportunity only materializes when executive power is granted to the decision-maker and enables the individual to take advantage of a given circumstance. Hence, the distribution of executive power conditions the overall capacity of society to properly deal with the available circumstances. Dacin (1997, p. 47) argues that *“an important source of normative prescriptions is the broader sociocultural environment and suggests that the power with which these prescriptions influence organizations can vary over time.”*⁹² The literature shows that power is managed through the rise of institutions, which may acquire a formal (rules, regulatory frameworks, and collective organizations) or an informal nature (culture, tradition, and common practice). Whether the formal or informal kind, institutions channel human behavior and define the scope for humans to express their executive power.

The interdependence of human optimal work efforts of some form of governance is not refutable. In every organization, under a more or less deeper analysis, it is possible to identify situations where two people are dealing with the same subject, at the same time, wasting resources. This means that the members of the organization are equally provided

⁹² See M. Tina Dacin (1997) “Isomorphism in context: The power and prescription of institutional norms.”

with executive power to perform the task. Nonetheless, the individuals are lacking proper coordination. Economic efficiency depends on some form of governance that optimizes coordinated efforts.

The challenge is thus to find the adequate structures to coordinate work efforts without withdrawing executive power from those who must deal with the available circumstances. Focusing on problem-solving know-why under overall intelligibility for everyone in an organization while helping people to control their own work are two major features of an enabling bureaucracy.⁹³ As it is suggested by equation (1), a loss is always endured when an opportunity is lost. We must not confuse work effort optimization with the castration of the worker initiative.

It is therefore required to raise some form of governance that enables individual initiative while safeguarding overall welfare. Bureaucratic structures are, as a matter of course, the dictators of the room that is given for citizens to actually do something. However, the literature shows that “*the negative consequences of bureaucracy – rigidity, alienation, and low commitment – may be widespread but*” (...) “*they are the result of poor choices in the specific form given to bureaucracy*” Adler (1999, p. 37). Bureaucratic institutions acquire a coercive strength that is necessarily dependent on the goal that their builders are aiming for. Notwithstanding the undeniable dependence of optimal work efforts from proper bureaucratic structures, institutional design is not the starting point to building overall welfare.

Building overall welfare starts with raising an ideal to do so. As it is illustrated in Figure 4, mankind is mistakenly engaged in competitive practices, playing the economic game on the losing side. This human behavior is explained by our bounded rationality in conjunction with our focus on immediate payoffs and loss aversion. Kahneman (2003, p. 705), explaining the phenomena of choice, poses that “*because the reference point is usually the status quo, the properties of alternative options are evaluated as advantages or disadvantages relative to the current situation, and the disadvantages of the alternatives loom larger than their advantages.*” Again, we come to the conclusion that overcoming emotionally-driven reactions to reach an ideal of building overall welfare cannot be done effortlessly.

Explaining why society has not reached this ideal yet is part of the reason why virtuous economics is still struggling to find legitimacy. Nonetheless, understanding the motives that are holding us from going forward allows us to remove fear from our thoughts

⁹³ See the seminal work of Paul S. Adler (1999) “Building better bureaucracies.”

and help us to realize how to better overcome such hardships. And fears are closely connected to both the current payoff structure and the shape of the value function that is ingrained in human nature. Trusting in an ideal of overall welfare is still a too demanding task for the non-economist.

Nonetheless, particularly because the majority of those who graduate in economics are not professional economists, the struggle to reach a global ideal of overall welfare acquires an additional difficulty. Kaarbo (1998, p. 227) states that “*social psychology provides ample evidence that individuals and their behaviors are affected by group membership, power and status relationships, external constituencies, and various other institutional incentives.*” Moreover, Durnheim et al. (2016, p. 21) pose that “*prejudice expressions are strategically responsive to social norms, values, and audiences at the same time as being strategically deployed to shape norms, values, and audiences.*” The space between individual prejudice, social norms, and economic performance cannot be dissociated from actual payoffs.

The extension to which unequal payoffs hinder the adoption of an overall welfare global ideal is a dimension to be aware of. For instance, in 2021, the BMW group reached an astonishing net profit of 13.8 billion U.S. dollars. The global number of BMW Group employees is 118,909. The 2021 BMW Group’s net profit is higher than the 2020 GDP of more than fifty countries in the world. Countries with populations of millions, such as Mauritania, Rwanda, Namibia, and Nicaragua, are among those whose annual total production underscores the 2021 BMW Group’s profit performance. Moreover, BMW Group ranks 56th position of Fortune’s Global 500 Rank which outlines the potential of big multinational corporations to extract value from the world’s total production.⁹⁴ Payoffs are huge and meaningful.

This state of affairs facilitates the development of two arguments.

First, it is plain that it is by building higher interdependence among men that economic development consolidates. BMW Group has a global sales network in more than 140 countries. The company has 31 production and assembly facilities in 15 countries. The organization extends globally and is globally dependent, not only to sell their entire production but also to acquire the means of production. By interacting at a global scale, corporations such as BMW are able to create value and take the opportunities presented

⁹⁴ Data can be found at:

<https://english.news.cn/20220311/301e5a0bcde8483f81dfb8848932d1f9/c.html>

<https://www.statista.com/statistics/264343/global-number-of-employees-of-bmw-group/>

https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?most_recent_value_desc=true;

[https://fortune.com/worlds-most-admired-companies/2016/bmw/.](https://fortune.com/worlds-most-admired-companies/2016/bmw/)

globally by engaging in a mutually positive exchange between supply and demand. The results reached by companies such as this one stand out in the herein exposition on the importance of positive opportunistic behavior to economic development.

Second, the enormous inequality regarding payoff distribution motivates mankind to divide into groups of “us” and “them.” Kaarbo (1998) alerts that intergroup conflict can occur when humans resort to social categorization as a means of managing one’s social environment.⁹⁵ The author further outlines the psychological comprehensibility of this social categorization for “*identification with a particular group that is considered distinct and superior to other groups on dimensions one values facilitates the maintenance of a person’s self-esteem and social identity*” (Kaarbo, 1998, p. 228). Hence, despite it is herein demonstrated that there is a finite time presenting a threshold upon which everybody will be experiencing higher levels of welfare than ever, virtuous economics will likely face an overwhelming task to make the owners of BMW realize that they will end up better by giving up all those profits.

The engagement in negative opportunistic behavior always sets a boomerang loss that defines mankind’s decay. Despite negative opportunistic behavior can be properly addressed through the enactment of a reward-based economic environment, it is true that raising this type of institution focused on fostering positive opportunistic behavior depends upon a global ideal of ensuring overall welfare.

The social sciences are important for two fundamental reasons. First, social sciences find the uniform characteristics in each human being and endow humanity with a knowledge that allows us to optimize the nature of our material and immaterial interactions, respecting individuality. Second, the social sciences allow humanity to find the path of progress if it wants to. At the same time, they expose us to the ease with which we can fall into decay. These reasons load the entire society with the burden of overall welfare but charge accountability from those who are held responsible for raising an adequate institutional environment.

As we have seen this far, economics is both the discoverer and the guardian of overall welfare. But pretense individual interests vested with bounded rationality can get in the way. Despite there being only “us,” society is aware that humans can develop an “us versus them” mentality which necessarily dooms mankind to perish. So, there is a question that arises: Can society ever be able to take care of itself?

⁹⁵ See Kaarbo, J., & Gruenfeld, D. (1998) “The social psychology of inter- and intra-group conflict in governmental politics.”

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“Liberty is meaningless if it is only the liberty to agree with those in power.”

Ludwig von Mises

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